

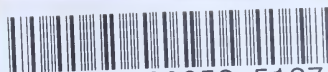


Councilman Allen Jordan

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NEWTON, MASSACHUSETTS

NEWTON COLLECTION



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CITY
OF
NEWTON

MASSACHUSETTS.

1891.

PUBLISHED BY ORDER OF THE CITY COUNCIL.



NEWTON UPPER FALLS:
FANNING PRINTING CO.
1892.

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NEWTON COLLECTION

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ADDRESS

— OF —

HERMON E. HIBBARD,

MAYOR OF NEWTON,

TO THE CITY COUNCIL,

JANUARY 5, 1891.



NEWTON UPPER FALLS:
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THE MAYOR'S ADDRESS.

Gentlemen of the City Council:—

We have assembled to enter formally upon the duties which have been assigned to us by our fellow citizens. It is my privilege to communicate to you such information and to recommend such measures as in my judgment the interests of the City of Newton seem to require.

At the commencement of the municipal year I desire to urge upon your attention as forcibly as possible, that your first and most important rule of conduct in your official acts should be, to hold the general welfare of the City at large paramount to any local interest of whatever nature.

SEWERAGE.

It is expected that during the present year you will be able to furnish certain portions of the City with a sewerage system. This subject demands your most careful consideration in order to avoid an unwieldy debt and an excessive tax rate.

Several plans to provide for the payment of so large an expenditure which is to affect so vitally the future welfare of the City have been considered, and I hope one has been

adopted that will give to all parts of the City a fair and equitable portion of the expenditure.

The new Metropolitan Sewer now in process of construction is expected to be ready for use at the close of the present year. If we move in the matter of sewerage for Newton as we are expected and desired to do, we should be ready in some degree to take advantage of the benefits to be derived from the Metropolitan System as soon as it is completed, and that will be none too soon for the safety and welfare of residents in the more thickly settled portions of the City.

No apology is offered for urging immediate action upon this matter, as it is believed to be a necessity which demands more than the usual passing remark at this time.

I think it is the general sense of our tax payers, that for the present we should confine our extra expenditures to the completion and perfection of a sewerage and drainage system, and that expenditures for new public buildings, new parks and play grounds, are not advisable while so great a public work and expense as our sewerage and drainage system is in hand.

In the consideration of every measure the question of ways and means will confront us, and your attention is called to the present financial condition of the City.

CITY DEBT.

Net Funded City Debt Jan. 1, 1891, . . .	\$290,563 29
Net Water Debt Jan. 1, 1891, . . .	1,108,230 35
<hr/>	
Total Net Debt,	\$1,398,793 64

The net increase of the City Debt during the	
past year has been	\$51,515 95
Net increase of the Water Debt,	150,640 75

Total net increase of the City Debt for the	
year 1890,	\$202,156 70

The increase in the City debt was for the following purposes: New fire department building at Newton Highlands, \$16,500; in aid of the Newton Cottage Hospital for new buildings, \$10,000; land for new almshouse, \$7,600; sundry drains, \$25,000; enlargement of the Claflin school house, \$33,500; water department, for new mains, land and reservoir at Waban Hill, and other land for the extension of the filtering basin, \$183,000.

APPROPRIATIONS.

The appropriation of \$655,372.00 made in November, 1890, for the City's expenses for the ensuing year, at first sight seems to be a very large yearly expenditure, yet when the great area of our City is considered, and its unusual mileage of streets and sidewalks. (which must be kept repaired, lighted, watered and patrolled) is taken into consideration, also the fact that the City of Newton is composed of many Newtons, each located at no small distance from the others, and all requiring and deserving equal advantages and improvements, you must acknowledge that the attendant circumstances are against you in comparing the cost and expense of maintenance with that of other cities of equal population.

There is scarcely an item in the list of appropriations that is not increased largely on account of these peculiar conditions.

The citizens of Newton are not satisfied with any method of management that savors of parsimony, and yet they are decidedly critical whenever large expenditures are required, and in order to merit their full confidence, you must give to every matter that may be brought to your notice the fullest investigation, and decide for or against it as you would if it were your own personal business which you desired to manage and direct in such a manner as to create a regular and lasting growth.

PUBLIC SCHOOLS.

The largest single item found in the list of appropriations is that for public schools, \$129,650.

The expenditure of this sum is left mainly to the discretion of the School Committee, and to them we must look for satisfactory results in the future as in the past.

Among educators, Newton schools are regarded as having attained a high standard of excellence ; and compared with the present system in vogue in other cities of Massachusetts, there is no doubt regarding the correctness of their rating.

HIGHWAYS.

The next largest item in the list is the appropriation for highways, \$129,000.

Included in this amount is one item of \$75,000, for

general repairs, salary of superintendent and some minor expenses.

To any one unacquainted with the fact that Newton has 118 miles of highways to care for, this amount might seem extravagant; but the gentlemen who have had the work to supervise and direct in the past, have found it extremely difficult to give a reasonable degree of satisfaction to all, with an equal amount at their disposal.

Two other items may be noticed in the list of appropriations, one for lighting streets, \$25,500, and one for watering a portion of same; a part of the necessary time, \$7,500. These items might properly be called highway expenses, and if added to the amount previously mentioned, would increase the sum to \$162,000, making the expense of the highway department nearly one quarter of the whole expense of the City for the year. If such portion of the expense of the city engineer's department was added as might properly be, the sum would about equal one quarter of the entire yearly expense of the City. Calculating upon this basis the present cost of maintaining our highways, including reconstruction and lighting of same is more than \$1,300 per mile per year.

The appropriation for highways for the year 1885 was \$89,600, and you will notice that the yearly expenditure for the past five years has been steadily and rapidly increasing, until the present figure of \$129,000 has been reached. I think it is time to call a halt in highway expenditures. I shall soon recommend for your consideration an entirely different system from the one now pursued in the general care and improvement of our highways, and which if adopted, will, I believe, not only greatly lessen the expense

of this department, but also afford better and more satisfactory roadways.

POLICE DEPARTMENT.

The appropriation for the police department for the ensuing year is \$37,025.

The regular force of this department now consists of one marshal, one captain, one sergeant, one inspector and twenty-eight patrolmen, at a yearly cost of \$33,400.

The remainder of the appropriation, \$3,625, is for various items of expense connected with the department, including temporary service.

There seems to be an honest difference of opinion among our citizens regarding the efficiency of this department. Fortunately, no doubt exists regarding the liberality of this appropriation, which should afford the city a high order of service, and you will doubtless be able to remove soon any and all wrong impressions concerning its standing.

In consideration of the fact that Newton continues to protest forcibly against licensing the sale of intoxicating liquors for use as a beverage, the law must be rigidly enforced through this department.

The law recognizes the right of the community to be provided with intoxicating liquors for medicinal, mechanical and chemical purposes, and provides that licenses shall be granted annually to apothecaries, if the applicants are fit persons to receive such licenses and are not otherwise disqualified.

This law was enacted for the protection of the community, and not for the purpose of increasing the number of

apothecary stores in a no-license city, and there is no reason why a selection should not be made from among the large number of annual applicants for apothecaries' licenses, if the public interests or the cause of temperance require it, and it is your plain duty to determine this question and thereby render valuable aid in keeping our homes free from intemperance with its manifold evils and miseries.

WATER DEPARTMENT.

The appropriation for the water department, \$18,000, is generally conceded to be a fair and reasonable amount to expend for the proper development and maintenance of the department.

If any department of the City is more satisfactorily managed or gives to the citizens better service, I have yet to hear it mentioned.

Great progress has been made during the past year in building an extension of the system to be called the high service, and it will be but a few months before the entire City will be supplied with water of excellent quality, and ample protection afforded against loss by fire.

LIGHTING STREETS.

Among the items of appropriation may be noticed the yearly cost of lighting our streets, viz., \$25,500. This expense is fixed by contract for a term of years. The cost of street lighting has recently had considerable investigation by an able committee and should be closely studied in the future.

You are doubtless aware of the fact that many compara-

tively small corporations using not more than one-tenth of the light required for our City, find it to their advantage financially to own and control their lighting plant. Would it not prove to be of the same advantage to the City of Newton to own and control a suitable plant for lighting the streets and City buildings? This reasoning should hold good as long as the City is able to manage any of its public works successfully, and in this connection I desire to recommend keeping all franchises within the direct control of the City, and so arranging details as to enable the City to realize a consideration for all privileges granted.

NEWTON FREE LIBRARY.

The appropriation of \$11,280 for the maintenance of the Newton Free Library may be liberal, but its value as an educational institution is not often over estimated, and it deserves a generous support in order that its excellent influence may be increased.

FIRE DEPARTMENT.

The fire department maintains from year to year its usual high standard of efficiency. We should not lose sight of the fact that its facilities for protection should keep pace with the growth of the City and the increased demands liable to be made upon it at any moment.

POOR DEPARTMENT.

The appropriation of \$13,500 for the care and support of the poor of our City, both in and out of the almshouse, will no doubt be expended as wisely in the future as in the past.

The gentlemen in charge of this department are rendering valuable service to the City. To give to our worthy poor just that aid and encouragement which is for their best good, requires great tact, wise judgment and a kind heart, and the present overseers have proved fully equal to their task.

OTHER APPROPRIATIONS.

The remaining items found in the schedule of appropriations for the current year are composed largely of amounts varying but little from year to year, such as appropriations for sinking funds, interest on City bonds, temporary loans, miscellaneous expenses, salaries of officials, etc., all of which are a necessary part of the yearly expenditure for the general work of the various departments.

I trust you will not be asked to increase any of the appropriations already made, but will use your utmost endeavors to show an unexpended balance of each at the close of your term of service.

GRADE CROSSINGS.

You should carefully consider the opportunity now offered to rid our City of the numerous grade crossings which endanger the lives of so many citizens daily, and also directly injure many valuable properties.

The present seems an especially desirable time for action, as existing conditions will enable the City to have this work accomplished at a cost not exceeding 15 per cent. of the entire expense. It is for you to decide whether the present conditions warrant action in the matter.

VOLUNTEER MILITIA.

The reputation of our military company the Claflin Guard has been fully maintained by its officers and members during the past year.

Our citizens may justly feel proud of its record as an efficient military organization, worthy of the support given to it.

CITY ENGINEER'S DEPARTMENT.

The work of the city engineer's department is constantly and rapidly increasing, and better facilities are needed and should be provided.

In the construction and improvement of streets as well as in all other public works which are maintained by the City, every facility for careful and exact methods should be afforded.

The work connected with the sewerage system will add largely to the labors of this department and demands an increased force of competent men.

PUBLIC HEALTH.

The question of health is one that most intimately concerns the welfare of the residents of our City, and demands continual and careful attention.

Although no official report of the proceedings of the board has been printed since that of 1888, yet the officers have given careful attention to their duties, which are at all times onerous and responsible.

The board should be encouraged in the faithful dis-

charge of its duties by the hearty co-operation of all our citizens.

CITY REPORTS.

I would suggest issuing promptly at the close of the municipal year, in the same volume with the Auditor's annual report, reports of the water board, board of health, and committees on highways, schools and sewerage.

CONCLUSION.

Gentlemen: Let us strive to meet the expectations of our fellow citizens by working harmoniously to promote the best interests of the City of Newton.

ANNUAL REPORT
OF THE
FINANCES OF THE CITY
OF NEWTON,

MASSACHUSETTS,

FOR THE YEAR ENDING DECEMBER 31, 1891.

NO. CCXIII.

REPORTS OF CITY TREASURER, COMMITTEE ON FINANCE,
AND STATEMENT IN DETAIL OF HENRY A. PIPER,
PUBLIC ACCOUNTANT; CITY AUDITOR,
ASSESSORS, CITY CLERK,

REGISTRARS OF VOTERS AND SUPERINTENDENT OF BURIALS.



NEWTON UPPER FALLS:
FANNING PRINTING CO.
1892.

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CITY OF NEWTON, December 31, 1891.

To the Honorable Mayor and City Council:

GENTLEMEN:—In accordance with Section 11, Ordinance 4, I have the honor to lay before you the statement of the receipts and expenditures of the Treasury Department for the year ending December 31, 1891.

Very respectfully yours,

JOHN A. KENRICK,
Treasurer and Collector.

CITY TREASURER'S ACCOUNT.

CITY OF NEWTON *in account with* JOHN A. KENRICK,
Treasurer and Collector.

YEAR ENDING DECEMBER 31, 1891.

Dr.

Almshouse expenses and repairs	\$3,497 46
Almshouse building	300 00
Armory	932 67
Assessors	9,977 10
Bath house	173 70
Board of Health	6,408 76
Board of Health, Mague Drain	13,395 18
Books, stationery and printing	3,869 45
Burial grounds	356 38
Burial of deceased soldiers	70 00
City Engineer's Department	9,668 84
City Hall	2,814 22
Claffin school	500 00
County tax	27,421 81
Curbing	2,146 54
Drains and Culverts	23,150 59
Elections and registration of voters	3,502 59
Evening schools	850 51

Amount carried forward,

\$109,035 80

<i>Amount brought forward,</i>	\$109,035 80
Fire department	40,750 47
Funded debt, 4 per cent. note	5,150 00
Funded debt, 3 1-2 per cent. note	4,500 00
Funded debt, 3 1-2 per cent. note, Free Library	4,600 00
Gravel land	1,057 35
Gymnasium building	10,500 00
Highways general repairs	59,208 19
Highways widening	22,614 50
Highways crushed stone	3,388 53
Interest on city loans, permanent	15,011 00
Interest on city loans, temporary	8,063 04
Interest on water bonds	73,500 00
Interest on sewer bonds	2,000 00
Indigent soldiers and sailors	831 00
Kenrick fund	172 50
Land damages	250 00
Memorial Day	500 00
Miscellaneous expenses	7,687 02
National Bank tax	1,358 71
Newton Cottage Hospital	1,500 00
Newton Free Library	11,792 29
Newton Highlands engine house	5,245 10
Overlay 1889	10 36
Overlay 1890	460 80
Overlay 1891	3,134 27
Parks and squares	2,126 76
Police department	37,594 30
Police patrol stable	6,798 73
Poor out of Almshouse	9,602 54
Premium on tax sale	20 00
Public property	23,763 42
Read Fund income	1,629 42

Amount carried forward, \$473,856 10

<i>Amount brought forward,</i>	\$473,856 10
Removal of ashes	4,840 20
Salaries	14,890 00
Schools	115,777 95
School incidentals	10,154 05
Sewerage	2,693 15
Sewer construction	188,461 06
Sidewalks	16,189 56
Sinking fund city debt	29,000 00
Sinking fund school loan	4,000 00
Sinking fund water bonds	23,000 00
Soldiers' relief	932 99
State tax	25,545 00
State aid	1,048 50
Street lights	24,713 58
Temporary loans	414,300 00
Use of hydrants	12,840 00
Waban school house	13,800 83
Water construction	118,189 04
Water maintenance	14,073 19
Water maintenance, meters and service pipe	3,531 34
Water rebate	320 42
Watering streets	11,514 57
Watering troughs and drinking posts	1,334 24
	<hr/>
	\$1,525,005 77
Balance in the Treasury Dec. 31, 1891	68,953 39
	<hr/>
	<u>\$1,593,959 16</u>

CR.

Balance in treasury Jan. 1, 1891	\$41,703 26
Alms-house	1,181 36
	<hr/>
<i>Amount carried forward,</i>	\$42,884 62

<i>Amount brought forward,</i>	\$42,884 62
Armory	400 00
Assessors	135 00
Board of Health	1,109 98
Books, stationery and printing	52 53
Burial of deceased soldiers	87 50
Betterments, Newtonville drain	24 27
City Hall	972 50
Collector's fees	539 32
Corporation tax	74,421 30
Curbing	319 21
Dog tax	2,781 18
Drains and culverts income	126 92
Druggists licenses	21 00
Evening schools	19 00
Fire department income	160 65
Foreign ships	712 27
Funded debt 4 per cent. drainage note	20,000 00
Funded debt 4 per cent. Water bonds	150,000 00
Funded debt 4 per cent. Waban school note	15,000 00
Funded debt 4 per cent. Mague drain	17,000 00
Funded debt 4 per cent. Sewer bonds	175,000 00
Gravel land	25 40
Highways	1,802 21
Indigent soldiers and sailors	403 00
Interest on bank deposits	1,032 78
Interest on city loans	200 00
Interest on taxes	2,757 41
Interest on water scrip	1,660 59
Interest on sewer bonds	994 44
Interest on curbing assessment	1 08
Interest on Board of Health assessment	25 74
Kenrick Fund income	172 50

Amount carried forward, \$510,842 40

<i>Amount brought forward,</i>	\$510,842 40
Meter rates	52,470 43
Meter rents	3,985 70
Meter and service pipe	5,515 69
National bank tax	14,669 27
Non-resident bank tax	1,377 24
Newton Free Library Catalogue account .	7 00
Parks and squares	8 00
Peddlers' licenses	125 00
Police department	2,693 97
Poor out of Almshouse	1,829 87
Public property	330 50
Premium on sewer bonds	2,891 00
Record and other fees	512 00
Read Fund income	1,828 55
School incidentals	1 50
State tax	1,086 50
Sewerage construction	7,627 13
Sundry parties, cash turned into treasury .	9 16
Taxes, 1886	2 00
Taxes, 1887	4 00
Taxes, 1888	86 15
Taxes, 1889	4,069 68
Taxes, 1890	77,825 31
Taxes, 1891	446,284 47
Tuition of non-resident pupils	310 75
Temporary loans	425,000 00
Water construction	5,653 01
Water rates	22,874 24
Watering streets	4,038 64

\$1,593,959 16

LEDGER BALANCES.

Dr.

Betterments, Newtonville drain	\$1,823 03
Bills receivable, Kenrick Fund	1,250 00
Cash	68,953 39
Public property owned by the city	1,107,586 48
Sewer construction	123,740 57
Sewer construction, Killian contract	56,345 21
Taxes, 1886	1,050 25
Taxes, 1887	1,716 87
Taxes, 1888	1,971 14
Taxes, 1889	2,328 31
Taxes, 1890	16,550 85
Taxes, 1891	129,813 43
Watering streets	1,769 72
Water construction	1,523,111 43
	<hr/>
	\$3,038,010 68

Cr.

Board of Health, Mague drain	\$3,338 75
City of Newton	809,154 22
Funded debt, 3 1-2 per cent. High school note	22,500 00
Funded debt, 4 per cent. Almshouse note	7,600 00
Funded debt, 4 per cent. Auburndale school note	15,450 00
Funded debt, 4 per cent. Claflin school note	33,500 00
Funded debt, 4 per cent. Drainage note	25,000 00
Funded debt, 4 per cent. drainage	20,000 00
Funded debt, 4 per cent. Mague drain note	17,000 00
Funded debt, 4 per cent. Cottage Hospital note	10,000 00
Funded debt, 4 per cent. Fire notes	16,500 00

Amount carried forward,

\$980,042 97

<i>Amount brought forward,</i>	\$980,042 97
Funded debt, 6 per cent. city notes . . .	77,000 00
Funded debt, 4 per cent. sewer bonds . . .	175,000 00
Funded debt, 4 per cent. school bonds . . .	44,000 00
Funded debt, 4 per cent. park bonds . . .	25,000 00
Funded debt, 5 per cent. municipal bonds . . .	34,000 00
Funded debt, 4 per cent. water scrip . . .	700,000 00
Funded debt, 5 per cent. water scrip . . .	250,000 00
Funded debt, 6 per cent. water scrip . . .	600,000 00
Funded debt, 4 per cent. Waban school note . . .	15,000 00
Kenrick Fund	4,062 50
Mayor's warrants, unpaid bills . . .	26,423 12
Overlay, 1887	2,083 34
Overlay, 1888	2,145 83
Overlay, 1889	2,764 87
Overlay, 1890	5,578 05
Overlay, 1891	2,874 82
Premium on tax sale	639 00
Read Fund income	908 13
Suspense account	488 05
Temporary loans	90,000 00
	<hr/>
	\$3,038,010 68

CITY OF NEWTON, CITY HALL, }
WEST NEWTON, Jan. 4, 1892. }

The Joint Committee on Finance beg leave to report that in pursuance of Section 13, Ordinance 4, they have caused to be examined the books and accounts of the Treasurer and Collector for the financial year ending December 31, 1891, and find them correct in all respects and all payments properly vouched. Attached, the Committee submit a detailed statement of the financial affairs of the city as of date December 31, 1891.

Respectfully submitted,

A. F. LUKE,
JOHN A. FENNO.
GEO. A. MEAD,
E. S. MERCHANT.

40 WATER STREET, BOSTON, }
January 1st, 1892. }

To the Joint Committee on Finance for the year 1891 :

GENTLEMEN:—I have to report that I have examined the accounts of the Treasurer and Collector of the City of Newton for the financial year ending December 31, 1891, in detail, as follows, viz.:

Cash Book.

I find the Cash Book correctly footed and the payments actually made supported by "approved" vouchers, all of which I believe to be legitimate and genuine. Some of the entries purporting to be payments have not yet been paid, but in all such cases the Treasurer has shown me the checks as being in his possession. There are numerous amounts upon the pay rolls uncalled for and for which the Treasurer has the money on hand; otherwise each and every pay roll has been duly signed.

The cash balance on December 31, 1890, was \$41,703 26

The total cash receipts for the year ending

Dec. 31, 1891, have been . . . 1,552,255 90

\$1,593,959 16

The payments for the year have been . . 1,525,005 77

And the cash on hand at close of business on

Dec. 31, 1891, was \$68,953 39

I find this balance accounted for as follows :

On deposit in the First Nat. Bank, West Newton \$24,105 98

On deposit in the Newton Nat. Bank . . 13,848 53

On deposit in the First Nat. Bank, Boston . . 3,026 72

On deposit in the Nat. Revere Bank, Boston . . 25,100 00

Discharge tickets paid 1,359 62

Bills and change on hand 1,512 54

\$68,953 39

The balances at the respective banks have been verified, and after allowing for outstanding checks, found to agree with the respective check book balances.

Taxes.

I find the warrant issued to the

Collector for the tax of		
1891, amounted to . . .		\$576,097 90
There has been collected . . .	443,150 20	
Rebates duly authorized . . .	3,134 27	
	<hr/>	446,284 47
Uncollected		\$129,813 43

During the year there has been collected on tax warrants of previous years as follows:

Taxes of 1886	\$2 00
Taxes of 1887	4 00
Taxes of 1888	86 15
Taxes of 1889	4,069 68
Taxes of 1890	77,825 31
Taxes of 1891	446,284 47

And there have been duly authorized abatements as follows:

Taxes of 1889	10 36
Taxes of 1890	460 80
Taxes of 1891	3,134 27

There remains due and uncollected taxes as follows:

Taxes of 1886	1,050 25
Taxes of 1887	1,716 87
Taxes of 1888	1,971 14
Taxes of 1889	2,328 31
Taxes of 1890	16,550 85
Taxes of 1891	129,813 43

The Collector's detail of collections of taxes and water rates have been all examined and the aggregate amounts have been duly entered upon the Treasurer's Cash Book.

Debt.

The funded debt is shown to be on Dec. 31,
1891 \$2,087,550 00

The temporary loan amounted at the same
date to \$90,000 00

Annexed is an exhibit showing in detail the debt classified as to maturity and rate per cent.

Sinking Fund.

I have also to report that I have examined the books of the Treasurer of the sinking fund and find the income to have been all accounted for, and the Cash Book and Ledger footings correct.

The cash balance uninvested on Dec. 31, 1890
was \$3,715 84

Income received during the year ending Dec.
31, 1891 13,837 04

Investments matured during the year ending
Dec. 31, 1891 69,000 00

City appropriations 56,000 00

Total \$142,552 88

Invested during the year . . . \$141,000 00

Accrued interest on investments 80 00

Cash balance, Dec. 31, 1891 . . . 1,472 88

\$142,552 88

I have personally examined the securities in the possession of the Commissioners and find them all on hand and duly stamped; and the cash balance above named has been verified and found to be on deposit in bank to the credit of

the several funds. Annexed is a statement of the several sinking fund balances, together with the investments thereof.

Read Fund.

I would also report that the note of the City of Newton for \$40,000 00, held by the Trustees of the Read Fund, has been shown me and I hereby certify that it is in the possession of the Trustees.

As the result of my examinations I have to report that everything in connection with the detail examined has been found correct; that the books have been correctly posted, and that the annexed balance sheet is a true statement taken from the books.

Respectfully submitted,

HENRY A. PIPER,

Public Accountant.

Trial Balance, Dec. 31, 1891.

	DR.	CR.
Almshouse expenses and repairs		\$1,392 98
Appropriations . . .	\$762,397 00	
Armory expenses . . .		202 63
Assessors' department . .		433 90
Almshouse building . . .	300 00	
Almhouse income . . .		1,181 36
Assessors' income . . .		135 00
Armory income . . .		400 00
Books, stationery and printing .		222 76
Board of Health . . .	7 63	
Board of Health, Mague drain .		3,604 82
<i>Amounts carried forward,</i>	<i>\$762,704 63</i>	<i>\$7,573 45</i>

CITY TREASURER'S ACCOUNT.

23

<i>Amounts brought forward,</i>	\$762,704 63	\$7,573 45
Burial grounds		380 75
Bills receivable, Kenrick fund .	1,250 00	
Betterments, Newtonville drain	1,823 03	
Bath house		26 30
Burial of deceased soldiers .		130 00
Board of Health betterments .		1,069 98
Books, stationery and printing income		52 53
City of Newton	1,324,027 26	
City Engineer's department .		28 53
City Hall expenses		12 90
City Hall income		972 50
Collector's fees		539 32
Corporation tax		74,421 30
Curbing		353 46
Cash	68,953 39	
Commonwealth of Mass. Nat. Bank tax		18 53
Curbing and sidewalks income .		319 21
Drains and culverts		4,729 15
Druggist license fees		21 00
Drains and culverts income .		126 92
Deceased soldiers' income .		87 50
Election and registration of voters		490 60
Evening schools		166 58
Evening schools income		19 00
Fire department		2,886 58
Fire department income		160 65
Foreign ships		712 27
Funded debt, 4 per cent. Waban school house note		15,000 00
<i>Amounts carried forward,</i>	\$834,731 05	\$1,434,326 27

<i>Amounts brought forward,</i>	\$834,731 05	\$1,434,326 27
Funded debt, 4 per cent. Mague meadow		17,000 00
Funded debt, 3½ per cent. High school building		22,500 00
Funded debt, 4 per cent. Auburn-dale and Nonantum school		15,450 00
Funded debt, 4 per cent. Cottage Hospital		10,000 00
Funded debt, 6 per cent. Town notes		77,000 00
Funded debt, 4 per cent. Alms-house note		7,600 00
Funded debt, 4 per cent. drainage note		25,000 00
Funded debt, 4 per cent. school bonds		44,000 00
Funded debt, 4 per cent. Claflin school house notes		33,500 00
Funded debt, 4 per cent. public park bonds		25,000 00
Funded debt, 4 per cent. Fire department notes		16,500 00
Funded debt, 5 per cent. municipal bonds		34,000 00
Funded debt, 4 per cent. water scrip		700,000 00
Funded debt, 5 per cent. water scrip		250,000 00
Funded debt, 6 per cent. water scrip		600,000 00
Funded debt, 4 per cent, drainage note		20,000 00

Amounts carried forward, \$834,731 05 \$3,331,876 27

<i>Amounts brought forward,</i>	\$834,731 05	\$3,331,876 27
Funded debt, 4 per cent. sewer loan		175,000 00
Gravel land		421 00
Gravel land income		25 40
Highways general repairs		17,565 68
Highways widening		3,047 44
Highways crushed stone	3,388 53	
Highways income		1,802 21
Indigent soldiers and sailors		235 00
Indigent soldiers and sailors income		403 00
Interest on permanent city loan		189 00
Interest on temporary loans		1,936 96
Interest on water bonds		660 59
Interest on bank deposits		1,032 78
Interest on taxes		2,757 41
Interest on city loan income		200 00
Interest on sewer bonds income		994 44
Interest on curbing assessments		1 08
Interest on Board of Health department		25 74
Kenrick fund		4,062 50
Land damages		350 00
Miscellaneous expenses	202 58	
Meter rentals		3,985 70
Meter rates		52,470 43
Meters and service pipes income		5,515 69
Mague drain		40 00
Newton Free Library		3,678 95
Newton Free Library catalogue account		7 00
Newton Highlands engine house		804 90

Amounts carried forward, \$838,322 16 \$3,609,089 17

<i>Amounts brought forward,</i>	\$838,322 16	\$3,609,089 17
National Bank tax		14,669 27
Overlay 1887		2,083 34
Overlay 1888		2,145 83
Overlay 1889		2,764 87
Overlay 1890		5,578 05
Overlay 1891		2,874 82
Parks and squares		697 89
Police department		339 73
Poor at Almshouse		809 96
Public property		49 54
Public property income . . .		330 50
Poor out of Almshouse income		1,829 87
Police income		2,693 97
Parks and squares income . .		8 00
Police patrol stable		201 27
Premium on sewer bonds . . .		2,891 00
Premium on tax sales		639 00
Public property owned by city .	1,077,935 35	
Peddlers' licenses		125 00
Removal of ashes		165 18
Read fund		908 13
Record and other fees, City clerk		512 00
Salaries		35 00
Schools	896 77	
School incidentals		909 01
Soldiers' relief		113 01
Sidewalks and street crossings .		1,810 44
State aid		139 50
Street light department . . .		2,832 00
Sewerage department	366 77	
Sewerage construction	123,740 57	
Sewerage construction, Killian contract	56,345 21	
<i>Amounts carried forward,</i>	\$2,097,606 83	\$3,657,245 35

<i>Amounts brought forward,</i>	\$2,097,606 83	\$3,657,245 35
State aid income		1,086 50
Suspense account		488 05
School incidentals income . .		1 50
Taxes, 1886	1,050 25	
Taxes, 1887	1,716 87	
Taxes, 1888	1,971 14	
Taxes, 1889	2,328 31	
Taxes, 1890	16,550 85	
Taxes, 1891	129,813 43	
Tuition non-resident pupils . .		310 75
Temporary loans		90,000 00
Water maintenance		275 51
Water construction	1,523,111 43	
Water meters and service pipes . .		11 94
Water rebates on bills		212 10
Water rates		22,874 24
Watering streets		1,985 43
Watering streets income	1,769 72	
Watering troughs and drinking posts		228 29
Waban school house		1,199 17
<hr/>		
	\$3,775,918 83	\$3,775,918 83

Funded Debt, Dec. 31, 1891.

DUE IN					
Water bonds, 6 per cent.	1905	\$600,000 00			
“ “ 5 per cent.	1906	250,000 00			
“ “ 4 “ “	1910	100,000 00			
“ “ 4 “ “	1914	100,000 00			
“ “ 4 “ “	1917	100,000 00			
“ “ 4 “ “	1918	100,000 00			

Amount carried forward, 1,250,000 00

<i>Amount brought forward,</i>				\$1,250,000 00
Water Bonds, 4 per cent. 1920			\$250,000 00	
“ “ 4 “ “ 1921		50,000 00	300,000 00	
Public park bonds 4 per cent. . . . 1908			25,000 00	
Municipal bonds 5 per cent. 1895			34,000 00	
School bonds 4 “ “ 1895			44,000 00	
Sewer bonds 4 “ “ 1911			175,000 00	
Town note 6 “ “ 1892			30,000 00	
Town note 6 “ “ 1894			47,000 00	
City notes 4 “ “ 1892			10,150 00	
“ “ 3 1-2 “ “ 1892			4,500 00	
“ “ 4 “ “ 1893			11,150 00	
“ “ 3 1-2 “ “ 1893			4,500 00	
“ “ 3 1-2 “ “ 1894			4,500 00	
“ “ 4 “ “ 1894			11,150 00	
“ “ 4 “ “ 1895			18,600 00	
“ “ 3 1-2 “ “ 1895			4,500 00	
“ “ 3 1-2 “ “ 1896			4,500 00	
“ “ 4 “ “ 1896			25,500 00	
“ “ 4 “ “ 1897			48,500 00	
“ “ 4 “ “ 1898			35,000 00	
				\$2,087,550 00

Temporary Loans.

City note due 1892 4 per cent.	\$25,000 00
City note due 1892 4 1-8 per cent.	15,000 00
City note due 1892 4 1-4 per cent.	10,000 00
City note due 1892 4 1-4 per cent.	40,000 00
	\$90,000 00

Sinking Fund Accounts, Dec. 31, 1891.

Water debt sinking fund	\$356,595 01
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INVESTED.

City of Newton water bonds, 5 per cent.	\$73,000 00
City of Newton water bonds, 4 per cent.	179,000 00
Boston & Maine R. R. Co. note 4 1-2 per cent.	34,000 00
City of Newburyport note 4 per cent.	24,000 00
City of Nashua note 4 1-4 per cent.	21,000 00
City of Newton school note 4 per cent.	5,150 00
City of Newton school note 4 per cent.	15,000 00
City of Newton fire department note 4 per cent.	5,000 00
Cash	445 01
	<hr/>
	\$356,595 01

City debt sinking fund	\$31,405 28
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INVESTED.

City of Nashua note 4 1-4 per cent.	\$31,000 00
Cash	405 28
	<hr/>
	\$31,405 28

Public park loan sinking fund	\$16,468 83
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INVESTED.

City of Newton water bonds, 4		
per cent.	\$14,000	00
Boston & Maine R. R. Co. note		
4 1-2 per cent.	2,000	00
Cash	468	83
	<hr/>	
	\$16,468	83
Newton school loan sinking fund		\$28,153 76

INVESTED.

City of Newton water bonds, 4		
per cent.	\$14,000	00
Boston & Maine R. R. Co. note		
4 1-2 per cent.	14,000	00
Cash	153	76
	<hr/>	
	\$28,153	76

AUDITOR'S REPORT.

CITY OF NEWTON, AUDITOR'S DEPARTMENT, {
March 7, 1892. }

To the Honorable City Council :

Gentlemen :—In conformity with the requirements of the several sections of the City Ordinance, I have the honor to present herewith the Annual Report of the receipts and expenditures of the City of Newton for the financial year commencing Jan. 1, and terminating Dec. 31, 1891, with a detailed account of each department, a statement of the liabilities and assets, a table showing the funded debt, the rates of interest, and times when notes and bonds are payable, another showing appropriations, Mayor's drafts, Treasurer's payments and balances, a statement of the Sinking Funds and of the Read Fund, a summary statement of receipts and expenditures for the year, a statistical table, showing the number of polls, real and personal estate, town, city, county and state taxes, rate of taxation, appropriations, etc., with the number of houses from year to year for thirty consecutive years. Among the remaining tabulations will be found a schedule of the city property so arranged as to show in separate classification the property belonging to the Almshouse, Fire, Highway, School, and other Departments. In addition to these, is also given such other information appertaining to the fiscal interests of the city as may possess general interest.

Very respectfully,

BENJAMIN F. OTIS,

Auditor.

DUTIES OF THE AUDITOR OF ACCOUNTS.

THE following are the important provisions of the Ordinance setting forth the duties of the City Auditor:

The Auditor shall receive all accounts and claims against the city, after the same shall have been verified by the Committee, or the proper certifying officers authorized on behalf of the city to make the contract, or cause the expenditure to be made. He shall carefully examine all such accounts and claims, see that they are correctly cast and duly authorized by the City Council or its order, and, having certified to the same, shall present them properly filed and labeled, to the Committee on Accounts.

The Auditor shall act as clerk of the several standing and joint standing committees, and as secretary of the Sinking Fund Commissioners and Trustees of the Read Fund, without extra compensation.

The Auditor, on or before the fifteenth day of February annually, shall make a report to the City Council of the receipts and expenditures of the past financial year, in detail, and shall give in his report, a schedule of the property of the city and of leases thereof, and an exhibit of the loans or debts bearing interest, due from the city, the rates of interest, and the time when payable. He shall each month transmit to the Mayor, and each member of the City Council, a statement showing the amounts expended and unexpended of each appropriation.

**LIABILITIES OF THE CITY OF NEWTON TO DEC.
31, 1891, INCLUSIVE.**

Water loan, 6 per cent. . .	\$600,000 00	
Accrued interest on same . .	18,000 00	
Water loan, 5 per cent. . .	250,000 00	
Accrued interest on same . .	6,250 00	
Water loan, 4 per cent. . .	700,000 00	
Accrued interest on same . .	7,000 00	
	<hr/>	\$1,581,250 00
Town notes, 6 per cent. . .	\$77,000 00	
Accrued interest on same . .	1,214 50	
	<hr/>	78,214 50
Municipal bonds, 5 per cent. .	\$34,000 00	
Accrued interest on same . .	850 00	
	<hr/>	34,850 00
Public park bonds, 4 per cent.	\$25,000 00	
Accrued interest on same . .	250 00	
	<hr/>	25,250 00
School house notes, 4 per cent.	\$15,450 00	
Accrued interest on same . .	267 80	
	<hr/>	15,717 80
School loan bonds, 4 per cent.	\$44,000 00	
Accrued interest on same . .	440 00	
	<hr/>	44,440 00
High school loan, 3 1-2 per cent.	\$22,500 00	
Accrued interest on same . .	196 87	
	<hr/>	22,696 87
Special drains and culverts		
loan, 4 per cent.	\$25,000 00	
Accrued interest on same . .	250 00	
	<hr/>	25,250 00
New Claflin School House loan,		
4 per cent.	335 00	
Accrued interest on same . .	335 00	
	<hr/>	33,835 00
<i>Amount carried forward,</i>		<hr/> \$1,861,504 17

<i>Amount brought forward,</i>		\$1,861,504 17
Engine house, Newton High-		
lands, loan, 4 per cent. .	\$16,500 00	
Accrued interest on same .	165 00	
	<hr/>	16,665 00
Newton Cottage Hospital loan,		
4 per cent.	\$10,000 00	
Accrued interest on same .	100 00	
	<hr/>	10,100 00
Land for Almshouse loan, 4		
per cent.	\$7,600 00	
Accrued interest for same .	76 00	
	<hr/>	7,676 00
Sewer loan, 4 per cent. . .	\$175,000 00	
Accrued interest on same .	1,750 00	
	<hr/>	176,750 00
Special Drains and Culverts note		
4 per cent.	\$20,000 00	
Accrued interest on same .	200 00	
	<hr/>	20,200 00
Drainage note (Mague Meadow)	\$17,000 00	
Accrued interest on same .	145 45	
	<hr/>	17,145 45
Waban school note . . .	\$15,000 00	
Accrued interest on same .	50 00	
	<hr/>	15,050 00
Temporary loans	\$90,000 00	
Accrued interest on same .	155 83	
	<hr/>	90,155 83
Uninvested portion of principal		
of Kenrick Fund . . .	\$2,750 00	
Accrued interest on same .	62 50	
	<hr/>	2,812 50
Read Fund income		908 13
Premium on tax sale . . .		639 00
	<hr/>	
<i>Amount carried forward,</i>		\$2,219,606 08

<i>Amount brought forward,</i>	\$2,219,606 08
Suspense account, amount in treasury subject to call by sundry parties	488 05
Unexpended balance of appropriation for drain- age of Mague Meadows	3,338 75
Mayors' warrants unpaid, water construction .	2,071 24
Mayor's warrants unpaid, appropriation .	26,423 12
Mayor's warrants unpaid, sewer construction .	24,032 84
	<hr/>
	\$2,275,960 08

DETAILED STATEMENT OF ASSETS.

Balance of taxes	
1886 . . .	\$1,050 25
Balance of taxes	
1887 . . .	1,716 87
Balance of taxes	
1888 . . .	1,971 14
Balance of taxes	
1889 . . .	2,328 31
Balance of taxes	
1890 . . .	16,550 85
Balance of taxes	
1891 . . .	129,813 43
	<hr/>
	\$153,430 85

Due from Commonwealth
of Massachusetts, as fol-
lows:—

On account of aid to soldiers and sailors under Chapters 301 and 279, Acts of 1889,	1,500 00
Balance of corporation tax .	7,727 66
Balance of national bank tax	606 99

<i>Amounts carried forward,</i>	<hr/>	\$163,265 50	<hr/>	\$2,275,960 08
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<i>Amounts brought forward,</i>	\$163,265 50	\$2,275,960 08
Due from miscellaneous sources, namely:—		
Due from county treasurer,		
dog tax 1891	2,548 98	
From sundry persons for betterments on drains, Wards 1 and 2, estimated . . .	700 00	
From sundry persons, sidewalks, curbing assessments, etc.	1,000 00	
Cash on hand	68,953 39	

Sinking Funds.

Water debt sinking fund:—

City of Newton		
water bonds,		
5 per cent.	\$73,000 00	
City of Newton		
water bonds,		
4 per cent.	179,000 00	
City of Newton		
schoolhouse		
note, 4 per cent.	5,150 00	
Engine house,		
Newton Highlands note, 4 per cent.	5,000 00	
Boston & Maine		
R. R. Co. note,		
4 1-2 per cent.	34,000 00	
<i>Carried forward</i>	\$296,150 00	\$236,467 87 \$2,275,960 08

<i>Brought forward,</i>	\$296,150 00	\$236,467 87	\$2,275,960 08
City of Newbury-			
port note, 4			
per cent. .	24,000 00		
City of Nashua			
note, 4 1-4 per			
cent. . .	21,000 00		
Waban school			
note, 4 per			
cent. . .	15,000 00		
Cash on deposit			
on interest .	445 01		
	<hr/>	\$356,595 01	
City debt sinking fund:—			
City of Nashua			
note, 4 1-4 per			
cent. . .	31,000 00		
Cash on deposit			
on interest .	405 28		
	<hr/>	\$31,405 28	
School loan sinking fund:—			
City of Newton			
water bonds, 4			
per cent. .	\$14,000 00		
Boston & Maine			
R. R. Co. note			
4 1-2 per cent.	14,000 00		
Cash on deposit			
on interest .	153 76		
	<hr/>	\$28,153 76	
Public park sinking fund:—			
City of Newton			
water bonds, 4			
per cent. .	\$14,000 00		
<i>Carried forward,</i>	\$14,000 00	\$652,621 92	\$2,275,960 08

<i>Brought forward,</i>	\$14,000 00	\$652,621 92	\$2,275,960 08
Boston & Maine			
R. R. Co. note,			
4 1-2 per cent.	2,000 00		
Cash on deposit			
on interest	468 83		
	<hr/>	\$16,468 83	
		<hr/>	\$669,090 75
			<hr/>
			\$1,606,869 33

RECAPITULATION.

Water Debt.

Water loan	\$1,550,000 00		
Accrued interest on same	31,250 00		
Mayor's warrants unpaid for			
construction	2,071 24		
	<hr/>	\$1,583,321 24	
Sinking fund	356,595 01		
Net water liability	<hr/>	\$1,226,726 23	

Sewer Debt.

Sewer loan	\$175,000 00		
Accrued interest on same	1,750 00		
Mayor's warrants unpaid for			
construction	24,032 84		
Net sewer liability	<hr/>	\$200,782 84	

City Debt exclusive of Water and Sewer Debt.

Town notes	\$77,000 00		
Accrued interest on same	1,214 50		
	<hr/>		
<i>Amount carried forward</i>			\$78,214 50

<i>Amount brought forward,</i>		\$78,214 50
Municipal Bonds . . .	\$34,000 00	
Accrued interest on same .	850 00	
	<hr/>	34,850 00
Public Park bonds . . .	\$25,000 00	
Accrued interest on same .	250 00	
	<hr/>	25,250 00
School house notes . . .	\$15,450 00	
Accrued interest on same .	267 80	
	<hr/>	15,717 80
School loan bonds . . .	\$44,000 00	
Accrued interest on same .	440 00	
	<hr/>	\$44,440 00
High school loan . . .	\$22,500 00	
Accrued interest on same .	196 87	
	<hr/>	22,696 87
Special drains and culverts loan	\$25,000 00	
Accrued interest on same .	250 00	
	<hr/>	25,250 00
New Claflin school house loan	\$33,500 00	
Accrued interest on same .	335 00	
	<hr/>	33,835 00
Engine house, Newton High- lands, loan	\$16,500 00	
Accrued interest on same .	165 00	
	<hr/>	16,665 00
Newton Cottage hospital loan	\$10,000 00	
Accrued interest on same .	100 00	
	<hr/>	10,100 00
Land for Almshouse, loan .	\$7,600 00	
Accrued interest on same .	76 00	
	<hr/>	\$7,676 00
<i>Amount carried forward</i>		<hr/> \$314,695 17

<i>Amount brought forward</i>		\$314,695 17
Special drains and culverts . . .	\$20,000 00	
Accrued interest on same . . .	200 00	
	<hr/>	20,200 00
Drainage note, Mague meadow . . .	\$17,000 00	
Accrued interest on same . . .	145 45	
	<hr/>	17,145 45
Waban school note . . .	\$15,000 00	
Accrued interest on same . . .	50 00	
	<hr/>	15,050 00
Temporary loans . . .	\$90,000 00	
Accrued interest on same . . .	155 83	
	<hr/>	90,155 83
Uninvested portion of principal of Kenrick fund . . .	\$2,750 00	
Accrued interest on same . . .	62 50	
	<hr/>	2,812 50
Read fund income . . .		908 13
Premium on tax sale . . .		639 00
Suspense account, amount in treasury subject to call by sundry parties . . .		488 05
Unexpended balance of appropriation for drainage of Mague meadow . . .		3,338 75
Mayor's warrants unpaid appropriation . . .		26,423 12
		<hr/>
		\$491,856 00
Cash on hand . . .	\$68,953 39	
Sinking fund . . .	31,405 28	
School loan sinking fund . . .	28,153 76	
Public Park sinking fund . . .	16,468 83	
	<hr/>	
<i>Amounts carried forward,</i>	\$144,981 26	\$491,856 00

CITY DEBT.

41

<i>Amounts brought forward,</i>	\$144,981 26	\$491,856 00
Balance taxes uncollected .	153,430 85	
Other assets uncollected .	14,083 63	
	<hr/>	\$312,495 74
Net city liability . . .		<hr/> \$179,360 26

PERMANENT DEBT. — Descriptive List.

	Rate.	Date of Loan, Etc.	Payable.	Amount.	Interest when Payable.
Commonwealth of Massachusetts	6	per cent.	April 22, 1870	\$30,000 00	April and October.
“	6	per cent.	March 10, 1875	47,000 00	March and Septemb'r.
Municipal Bonds, \$1,000 each	5	per cent.	July 1, 1175	34,000 00	January and July.
Water Bonds, \$1,000 each	6	per cent.	July 1, 1875	600,000 00	January and July.
“	5	per cent.	July 1, 1875	250,000 00	January and July.
“	4	per cent.	Oct. 1, 1880	100,000 00	April and October.
“	4	per cent.	Oct. 1, 1884	100,000 00	April and October.
“	4	per cent.	Oct. 1, 1887	100,000 00	April and October.
“	4	per cent.	Oct. 1, 1888	100,000 00	April and October.
“	4	per cent.	June 14, 1890	250,000 00	April and October.
“	4	per cent.	Aug. 14, 1890	50,000 00	April and October.
Sewer Bonds, \$1,000 each	4	per cent.	June 4, 1891	100,000 00	April and October.
“	4	per cent.	Nov. 4, 1891	75,000 00	April and October.
Public Park Bonds, \$1,000 each	4	per cent.	June 1, 1883	25,000 00	April and October.
Schoolhouse Notes, \$5,150 each	4	per cent.	Jan. 25, 1884	15,450 00	January and July.
School Loan Bonds, \$1,000 each	4	per cent.	April 1, 1885	44,000 00	April and October.
School Notes, \$4,500 each	3½	per cent.	April 6, 1886	22,500 00	April and October.
New Clafin School House Loan	4	per cent.	Oct. 1, 1890	5,000 00	April and October.
“	4	per cent.	Oct. 1, 1890	6,000 00	April and October.
“	4	per cent.	Oct. 1, 1890	6,000 00	April and October.
“	4	per cent.	Oct. 1, 1890	6,000 00	April and October.
“	4	per cent.	Oct. 1, 1890	10,500 00	April and October.
Special Drains and Culverts Loan	4	per cent.	Oct. 1, 1897	25,000 00	April and October.
Engine House, Newton Highlands, Loan	4	per cent.	July 11, 1890	5,000 00	April and October.
“	4	per cent.	Oct. 1, 1890	5,000 00	April and October.
“	4	per cent.	Oct. 1, 1890	6,500 00	April and October.
“	4	per cent.	Oct. 1, 1890	7,000 00	April and October.
Land for Almshouse Loan	4	per cent.	Oct. 1, 1890	10,000 00	April and October.
Newton Cottage Hospital Loan	4	per cent.	Oct. 1, 1890	20,000 00	April and October.
Special Drains and Culverts Loan	4	per cent.	April 1, 1891	17,000 00	April and October.
Drainage Note (Mague Meadow)	4	per cent.	Oct. 14, 1891	15,000 00	April and October.
Waban School Note	4	per cent.	Dec. 1, 1891	2,087,550 00	April and October.

REPORT OF SINKING FUND COMMISSIONERS.

The Sinking Fund Commissioners of the City of Newton beg leave to report to the City Council their doings for 1891 as follows:—

Water Debt Sinking Fund.

On hand in cash and securities at par Jan.	
1, 1891	\$321,519 65
Received interest on securities, loans and bank deposits	\$12,155 36
Less accrued interest on note of City of Newburyport, one month, 4 per cent.	80 00
	<hr/> 12,075 36
Received appropriation by the city for 1891	23,000 00
	<hr/> \$356,595 01

Invested as follows:—

City of Newton 5 per cent. water bonds, due July 1, 1906	*\$73,000 00
City of Newton 4 per cent. water bonds, due Oct. 1, 1910	75,000 00
City of Newton 4 per cent. water bonds, due April 1, 1914	65,000 00
City of Newton 4 per cent. water bonds, due Oct. 1, 1917	17,000 00
City of Newton 4 per cent. water bonds, due Oct. 1, 1918	22,000 00
<i>Amount carried forward,</i>	<hr/> \$252,000 00

<i>Amount brought forward,</i>	\$252,000 00
City of Newton 4 per cent. school note, due Jan. 25, 1894	5,150 00
City of Newton 4 per cent. Fire Department note, due Oct. 1, 1896	5,000 00
City of Newton 4 per cent. Waban school note, due Oct. 1, 1898	15,000 00
Boston & Maine R. R. Co. note, dated Dec. 1, 1891, 12 mos. with interest half yearly at 4 1-2 per cent.	34,000 00
City of Newburyport 4 per cent. note due Sept. 1, 1892, interest paid to Nov. 1, 1891	24,000 00
City of Nashua, N. H. note Dec. 16, 1891, 12 mos. with interest at 4 1-4 per cent. per annum	21,000 00
Deposit in National Revere Bank	445 01
	<hr/> \$356,595 01

*Interest due on Jan. 1, 1892, collected since report was made, \$1,825 00.

City Debt Sinking Fund.

On hand in cash Jan. 1, 1891	\$2,315 28
Received interest on bank deposit	90 00
Received appropriation by the city for 1891	29,000 00
	<hr/> \$31,405 28

Invested as follows:—

City of Nashua, N. H. note, dated Dec. 12, 1891, on 4 mos. with interest at 4 1-4 per cent.	\$31,000 00
<i>Amount carried forward,</i>	<hr/> \$31,000 00

<i>Amount brought forward,</i>	\$31,000 00	
Deposit in National Revere Bank	405 28	
	<hr/>	\$31,405 28

Public Park Sinking Fund.

On hand in cash and securities at par Jan. 1, 1891		\$15,842 15
Received interest on loans securities and bank deposits		626 68
	<hr/>	\$16,468 83

Invested as follows : —

City of Newton 4 per cent. water bonds, due April 1, 1914	\$12,000 00	
City of Newton 4 per cent. water bonds, due Oct. 1, 1917	2,000 00	
Boston & Maine R. R. Co. note, due Dec. 1, 1892, in- terest at 4 1-2 per cent. payable semi-annually .	2,000 00	
Cash on deposit in National Revere Bank	468 83	
	<hr/>	\$16,468 83

School Loan Sinking Fund.

On hand in cash and securities at par Jan. 1, 1891		\$23,188 76
Received interest on securities and loans .		965 00
Received appropriation by the city for 1891 .		4,000 00
	<hr/>	\$28,153 76

Invested as follows :—

City of Newton 4 per cent. water bonds, due April 1, 1914	\$4,000 00
City of Newton 4 per cent. water bonds, due Oct. 1, 1917	5,000 00
City of Newton 4 per cent. water bonds, due Oct. 1, 1918	5,000 00
Boston & Maine R. R. note, due Dec. 1, 1892, interest at 4 1-2 per cent. per annum, payable semi-an- nually	14,000 00
Cash on deposit in National Revere Bank	153 76
	<hr/>
	\$28,153 76

On the first of Dec. last we loaned the Boston & Maine R. R. Co. \$50,000 00 for 12 mos. at 4 1-2 per cent. interest payable semi-annually on account of the different sinking funds as follows :

Water debt	\$34,000 00
Public Parks	2,000 00
School loans	14,000 00

We also loaned the City of Nashua, N. H., \$21,000 00 on 12 mos. at 4 1-4 per cent. interest for the water debt sinking fund, and \$31,000 00 on 4 mos. at same rate for the city debt sinking fund.

We have also invested \$24,000 00 in a note of the City of Newburyport due Sept. 1, 1892, with interest at 4 per cent. from Nov. 1, 1891, for the water debt sinking fund.

We also reported to the City Council last October that there should be appropriated for the year 1892 as follows :

For the water debt sinking fund . . .	\$25,000 00
For the city debt sinking fund . . .	30,000 00
For the school loan sinking fund . . .	4,000 00

Respectfully submitted,

GEORGE S. BULLENS,
ALDEN SPEARE,
GEORGE C. LORD.

Newton, January 1, 1892.

REPORT OF THE TRUSTEES OF THE READ FUND.

In accordance with Ordinance XLIV Section 3, we beg leave to report to the City Council as follows :

Amount of interest collected for 1891 . . .	\$1,800 00
Less paid to the City of Newton . . .	1,800 00

This fund is \$40,000 00 and is invested in a note of the City of Newton, dated Nov. 28, 1891, on 12 mos. with interest semi-annually at 4 1-4 per cent. per annum.

Respectfully submitted,

GEORGE S. BULLENS,
ALDEN SPEARE,
GEORGE C. LORD.

Newton, January 1, 1892.

STATEMENT OF THE KENRICK FUND.

The following is a statement of this fund and its income, Jan. 1, 1892 :—

Amount invested	\$1,250 00
Cash uninvested	2,750 00
Total fund	<hr/> \$4,000 00

Balance income on hand Jan.

1, 1891	\$62 50	
Income received 1891	172 50	
	<hr/>	\$235 00
Amount distributed		172 50

Balance	\$62 50
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The distribution of the income of this fund has been made in accordance with the terms of the donor, to persons entitled to its benefits.

RECEIPTS.

The receipts for the year ending Dec. 31, 1891, are shown in the aggregates as credited in the following accounts:

Number of
Account.

1. Almshouse	\$1,181 36
2. Armory	400 00
3. Assessors' department	135 00
4. Board of Health	1,109 98
5. Books, stationery and printing	52 53
6. Burial of deceased soldiers	87 50
7. Betterments, Newtonville drain	24 27
8. City Hall	972 50
9. Collector's fees	539 32
10. Corporation tax	74,421 30
11. Curbing	319 21
12. Dog tax	2,781 18
13. Druggists' license fees	21 00
14. Drains and culverts	126 92
15. Evening schools	19 00
16. Fire department	160 65
17. Funded debt, 4 per cent. water bonds	150,000 00

Amount carried forward

\$232,351 72

<i>Amount brought forward,</i>	\$232,351 72
18. Funded debt, 4 per cent. sewer bonds	175,000 00
19. Funded debt, drainage loan	20,000 00
20. Funded debt, drainage loan	17,000 00
21. Funded debt, Waban school loan	15,000 00
22. Gravel land	25 40
23. Highways, general repairs	1,802 21
24. Interest on city loans	200 00
25. Interest on deposits	1,032 78
26. Interest on taxes	2,757 41
27. Interest on Water bonds	1,660 59
28. Interest on sewer bonds	994 44
29. Interest on curbing assessments	1 08
30. Interest on Board of Health assessments	25 74
31. Indigent soldiers and sailors	403 00
32. Kenrick fund income	172 50
33. National Bank tax	14,669 27
34. National Bank tax (non-resident)	1,377 24
35. Newton Free Library (catalogue account)	7 00
36. Parks and squares	8 00
37. Police department	2,693 97
38. Poor out of Almshouse	1,829 87
39. Public property	330 50
40. Premium on sewer bonds	2,891 00
41. Record and other fees	512 00
42. Read fund income	1,828 55
43. School incidentals	1 50
44. Sewerage construction	7,627 13
45. Ships engaged in foreign trade	712 27
46. Suspense account	9- 16
47. State aid	1,086 50
48. Taxes, 1886	2 00
49. Taxes, 1887	4 00

Amount carried forward, \$504,016 83

<i>Amount brought forward</i>	\$504,016 83
50. Taxes, 1888	86 15
51. Taxes, 1889	4,069 68
52. Taxes, 1890	77,825 31
53. Taxes, 1891	446,284 47
54. Tuition for non-resident pupils . .	310 75
55. Temporary loans	425,000 00
56. Water construction	5,653 01
57. Water meters, rents	3,985 70
58. Water maintenance, meters and service pipe	5,515 69
59. Water rates	22,874 24
60. Water rates by meters	52,470 43
61. Watering streets	4,038 64
62. Peddlers' licenses	125 00
<hr/>	
Total receipts	\$1,552,255 90

EXPENSES.

The claims of the year ending December 31, 1891, as approved and drawn for in the Auditor's office, are shown in the aggregates as charged to the following accounts: —

Number of
Account.

1. Almshouse expenses and repairs . .	\$3,913 20
2. Armory expenses	926 27
3. Assessors	10,081 13
4. Bath house	173 70
5. Books, stationery and printing . .	3,549 92
6. Board of Health	6,301 69
7. Board of Health, drainage of Mague meadow	15,224 58

<i>Amount carried forward,</i>	\$40,170 49
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<i>Amount brought forward,</i>	\$40,170 49
8. Burial grounds	396 22
9. Burial deceased soldiers	70 00
10. City Engineer's department	9,629 67
11. City Hall expenses	2,770 33
12. Elections and registration of voters	3,482 08
13. Fire department	41,472 81
14. Funded debt, school house note	5,150 00
15. Funded debt, High school building	4,500 00
16. Funded debt, Newton Free Library building	4,600 00
17. Gymnasium building	10,500 00
18. Highways, curbing	2,146 54
19. Highways, drains and culverts	7,025 20
20. Highways, drains and culverts (special)	15,449 04
21. Highways, general repairs	64,066 70
22. Highways, gravel land	731 03
23. Highways, land damages	250 00
24. Highways, sidewalks and street crossings	17,459 20
25. Highways, widening, reconstruction and improvement	22,288 14
26. Interest on city loans, permanent	15,011 00
27. Interest on city loans, temporary	8,186 79
28. Interest on water bonds	73,500 00
29. Interest on sewer bonds	2,000 00
30. Indigent soldiers	821 00
31. Kenrick fund income	172 50
32. Memorial day	500 00
33. Miscellaneous expenses	7,806 11
34. Newton Free Library	13,535 80
35. Newton Cottage Hospital	1,500 00
36. Newton Highlands engine house	5,245 10
37. Parks and squares	2,071 76

Amount carried forward, \$382,507 51

<i>Amount brought forward</i>	\$382,501 51
38. Police department	37,026 68
39. Police patrol stable	6,902 57
40. Poor out of Almshouse	9,894 67
41. Public property	23,674 59
42. Premium on tax sale	20 00
43. Read fund income	1,445 42
44. Removal of ashes	4,933 37
45. Salaries	14,890 00
46. Schools, evening	833 42
47. Schools, general appropriation	115,777 95
48. Schools, incidentals	8,249 93
49. Sewerage	2,366 77
50. Sewer construction	212,493 90
51. Sinking fund, city debt	29,000 00
52. Sinking fund, school loan	4,000 00
53. Sinking fund, water bonds	23,000 00
54. Soldiers' relief	886 99
55. State aid	1,057 00
56. Street light department	24,782 95
57. Taxes, 1891, county	27,421 81
58. Taxes, 1891, National Bank	1,358 71
59. Taxes, 1891, state	25,545 00
60. Temporary loans	414,300 00
61. Waban school house	13,800 83
62. Water construction	113,390 09
63. Water maintenance	13,975 02
64. Water meters and service pipe	3,498 06
65. Water rebate	293 98
66. Watering streets	11,580 57
67. Watering troughs	1,321 71
68. Water use of hydrants	12,840 00
<hr/>	
Total expenses	\$1,543,069 50

STATEMENT IN DETAIL OF RECEIPTS.
Alms-house.

Received from N. D. Moody, warden, for the sale of hay, straw, produce, wood, etc. .	\$977 36
Received for board of Charles T. Sawyer and wife	75 00
Received for board of Elizabeth Griffith	104 00
Received for board of Mrs. Mel- vin	25 00
<hr/>	
Total as per item No. 1 of receipts .	\$1,181 36

Armory.

Received from Commonwealth of Massachu- setts for rent of armory, as per item No. 2 of receipts	\$400 00
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Assessors' Department.

For clerical services in preparing assessments for watering streets, as per item No. 3 of receipts	\$135 00
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Board of Health.

Received from sundry persons on account of betterments in wards 2, 3, 6, as per item No. 4 of receipts	\$1,109 98
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Books, Stationery and Printing.

Received from School Department for paper for report, as per item No. 5 of receipts .	\$52 53
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Burial of Deceased Soldiers.

Received from the Commonwealth of Massachusetts one-half ex- pense for burial of three soldiers	\$52 50	
Received from S. F. Cate, refund of bill approved in error	35 00	
	<hr/>	
Total as per item No. 6 of receipts		\$87 50

Betterments Newtonville Drain.

Received from M. M. Smith on account of betterments assessed to Sarah E. Abbott, as per item No. 7 of receipts		\$24 27
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City Hall.

Received for use of hall, etc.	\$449 00	
Received for sale of old paper	23 50	
Received from treasurer of County of Middlesex for rent of po- lice court room	500 00	
	<hr/>	
Total as per item No. 8 of receipts		\$972 50

Collector's Fees.

Received from John A. Kenrick, Treasurer and Collector of taxes, for summonses, advertising tax sales, etc., as per item No. 9 of receipts		\$539 32
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Corporation Tax.

Received from Commonwealth of Massachu- setts, as per item No. 10 of receipts		\$74,421 30
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Curbing.

Received from sundry persons on account of curbing, as per item No. 11 of receipts .	\$319 21
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Dog Tax.

Received from treasurer of County of Middlesex for dog tax, as per item No. 12 of receipts	\$2,781 18
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Druggists' License Fees.

Received from sundry persons for liquor licences of the sixth class, as per item No. 13 of receipts	\$21 00
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Drains and Culverts.

Received from George A. Walton for pipe	\$14 90
Received from the estate of W. J. Towne for sewer cap .	6 80
Received from M. W. Sands for refund of bill	59 32
Received from N. Y. & N. E. R. R. Co. for refund of bill .	45 90
Total as per item No. 14 of receipts .	\$126 92

Evening Schools.

Received from Mrs. M. E. Sherwood on account of sundry persons for forfeiture of deposit upon non attendance of evening schools as per item No. 15 of receipts . . .	\$19 00
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Fire Department.

Received from I. F. Kingsbury for gray horse	\$150 00
<i>Amount carried forward,</i>	\$150 00

<i>Amount brought forward.</i>	\$150 00	
Received from Water Department for use of steamer, etc. in pumping water from well at pumping station . . .	7 15	
Received from Mr. Saunders for badge	3 50	
	<hr/>	
Total as per item No. 16 of receipts .		\$160 65

Funded Debt Water Bonds.

May 13. Received from R. L. Day & Co. for fifty City of Newton water bonds, 4 per cent. \$1,000 each, payable April 1, 1920, on account of water constuction . . .	\$50,000 00	
July 3. Received from R. L. Day & Co. for fifty City of Newton water bonds, 4 per cent. \$1000 each, payable April 1, 1920, on account of water constuction . . .	50,000 00	
Sept. 5. Received from Wm. F. Harbach, adminstrator, for five City of Newton water bonds, 4 per cent. \$1000 each, payable April 1, 1921, on account of water construc- tion	5,000 00	
	<hr/>	
<i>Amount carried forward,</i>	\$105,000 00	

Amount brought forward, \$105,000 00

Sept. 17. Received from R. L.

Day & Co. for forty-five City
of Newton water bonds, 4 per
cent. \$1000 each, payable
April 1, 1921, on account of
water construction . . . 45,000 00

Total as per item No. 17 of receipts . \$150,000 00

Funded Debt, Sewer Bonds.

June 5. Received from R. L.

Day & Co. for one hundred
City of Newton sewer bonds,
4 per cent. \$1000 each, paya-
ble April 1, 1911, on account
of sewer construction \$100,000 00

Nov. 4. Received from Edgar

Harding for seventy-five City
of Newton sewer bonds 4 per
cent. \$1000 each, payable
April 1, 1911, on account of
construction . . . 75,000 00

Total as per item No. 18 of receipts . \$175,000 00

Funded Debt, Drainage Loan.

June 30. Received from Newton Savings
Bank for City of Newton note, 4 per
cent. payable October 1, 1898, for the
construction of special drains, as per item
No. 19 of receipts . . . \$20,000 00

Oct. 14. Received from Brewster, Cobb &
Estabrook for City of Newton note, 4 per
cent. payable October 1, 1897, for the
drainage of Mague Meadow by order of
the Board of Health, as per item No. 20
of receipts . . . \$17,000 00

Funded Debt, Waban School Loan.

Dec. 1. Received from Commissioners of the
sinking funds of City of Newton for City
of Newton note, 4 per cent. payable Oct.
1, 1898, for the construction of Waban
school building, as per item No. 21 of
receipts \$15 000 00

Gravel Land.

Received from Amos L. Hale for refund of
bill approved by the committee in error,
as per item No. 22 of receipts . . . \$25 40

Highways, General Repairs.

Received from sundry persons for crushed stone	\$704 30
Received from sale of 4 old horses	265 00
Received from F. H. Kingsbury, for carting material from Hammond Street	257 85
Received from David Jackson for manure from city stables	200 00
Received from W. H. Mague for use of engine and crusher	100 00
Received from Fire Department for board of horses	97 00
Received from Town of Wellesley for one-third expense for re- pairing bridge over Charles River, Boylston Street	75 00
Received from sundry persons for old material	28 52
Received from Charles H. Hale for use of steam roller	25 00
<i>Amount carried forward</i>	<hr/> \$1,752 67

<i>Amount brought forward,</i>	\$1,752 67	
Received from Thomas Kelley, one-half cost building fence on Pine Street	26 29	
Received from Simon McBride, rent of house	14 00	
Received from Sewerage Construc- tion on account of changing drain pipe	9 25	
<hr/>		
Total as per item No. 23 of receipts .		\$1,802 21

Interest on City Loans.

Received from Newton Savings Bank accrued interest on note of \$20,000 00, for special drains and culverts, as per item No. 24 of receipts	\$200 00
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Interest on Deposits.

Received from Newton National Bank on daily balances	\$500 54
Received from First National Bank of West Newton on daily balances	326 17
Received from National Bank of the Common- wealth on special deposit	113 62
Received from First National Bank of Boston on special deposit	92 45
<hr/>	
Total as per item No. 25 of receipts .	\$1,032 78

Interest on Taxes.

Received from sundry persons, interest on taxes, as per item No. 26 of receipts .	\$2,757 41
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Interest on Water Bonds.

Received from R. L. Day & Co. accrued interest on \$50,000 00 4 per cent. water bonds	\$233 33
Received from R. L. Day & Co. accrued interest on \$50,000 00 4 per cent. water bonds	511 11
Received from W. F. Harbach, Admn., accrued interest on \$5,000 00 4 per cent. water bonds	86 15
Received from R. L. Day & Co. accrued interest on \$45,000 00 4 per cent. water bonds	830 00
	<hr/>
Total as per item No. 27 of receipts .	\$1,660 59

Interest on Sewer Bonds.

Received from R. L. Day & Co. accrued interest on \$100,000 00 4 per cent. sewer bonds	\$711 11
Received from Edgar Harding accrued interest on \$75,000 00 4 per cent. sewer bonds .	283 33
	<hr/>
Total as per item No. 28 of receipts .	\$994 44

Interest on Curbing Assessments.

Received from F. W. Stevens as per item No. 29 of receipts	\$1 08
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Interest on Board of Health Assessments.

Received from sundry persons interest on assessment of betterments as per item No. 30 of receipts	\$25 74
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Indigent Soldiers and Sailors.

Received from Commonwealth of Massachusetts, on account of aid to sundry persons, under Chapter 279, Acts of 1889, as per item No. 31 of receipts	\$403 00
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Kenrick Fund.

INCOME.

Balance uninvested Jan. 1, 1891,	
in city treasury	\$2,750 00
Balance of income on hand Jan.	
1, 1891	62 50
	<hr/>
	\$2,812 50
Income from investments in 1891, as per item	
No. 32 of receipts	172 50
	<hr/>
	\$2,985 00

EXPENDED.

Distributed per order Board of	
Aldermen, as per item No.	
31 of expenses	\$172 50
Balance income on hand	62 50
	<hr/>
	235 00
	<hr/>
Balance uninvested Jan. 1, 1892	\$2,750 00

National Bank Tax.

Received from Commonwealth of Massachusetts, national bank tax, as per item No. 33 of receipts	\$14,669 27
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National Bank Tax—Non-resident.

Received from Newton National	
Bank	\$948 24
Received from First National	
Bank, West Newton	429 00
	<hr/>
Total, as per item No. 34 of receipts	\$1,377 24

Newton Free Library—Catalogue Account.

Received from librarian for sale of catalogues as per item No. 35 of receipts	\$7 00
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Parks and Squares.

Received from Albert H. Roffe for grass from play-ground, as per item No. 36 of receipts	\$8 00
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Police Department.

Received from Henry L. Whit- tlesey, clerk of police court, fees for witnesses, fines and costs	\$2,528 97
Received from John M. Fisk, master of house of correc- tion, for fines	15 00
Received from sale of horse	150 00
<hr/>	
Total, as per item No. 37 of receipts	\$2,693 97

Poor out of Almshouse.

Received from Commonwealth Massachusetts for partial support, etc., of sundry per- sons	\$901 99
Received from City of Chelsea for partial support of sun- dry persons	204 36
Received from City of Boston for partial support of sun- dry persons	88 33
<hr/>	
<i>Amount carried forward,</i>	\$1,194 68

<i>Amount brought forward,</i>	\$1,194 68	
Received from City of Waltham for partial support of sun- dry persons	81 66	
Received from City of Somer- ville for partial support of sundry persons	13 00	
Received from Town of Water- town for partial support of sundry persons	87 94	
Received from Town of Dedham for partial support of sun- dry persons	72 00	
Received from Town of Hull for partial support of sundry persons	70 00	
Received from Town of Natick for partial support of sun- dry persons	54 45	
Received from Town of Ply- mouth for partial support of sundry persons	43 83	
Received from Town of Black- stone for partial support of sundry persons	42 30	
Received from Town of Concord for partial support of sun- dry persons	29 25	
Received for partial support of J. C. Gipson	84 04	
Received from Nathan Conant for partial support of Susan J. Conant	42 72	
Received from Lizzie O'Brien Newton Cottage Hospital .	14 00	
Total, as per item No. 38 of receipts		\$1,829 87

Public Property.

Received for rent of Prospect School hall	\$191 00	
Received from Wm. Kent for rent of house, Murray street	70 00	
Received from Auburndale Vil- lage improvement society for rent of old Williams school house	50 00	
Received from Simon McBride for rent of house, Pine street	7 00	
Received from John Ryan for stone	5 00	
Received for rent of Oak Hill school	4 00	
Received for sale of old stove	3 50	
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Total, as per item No. 39 of receipts		\$330 50

Premium on Sewer Bonds.

June 5. Received from R. L. Day & Co. 1.766 per cent. on \$100,000 00 City of Newton sewer bonds	\$1,766 00	
Nov. 4. Received from Edgar Harding 1.050 per cent. on \$75,000 00 City of Newton sewer bonds	1,125 00	
<hr/>		
Total, as per item No. 40 of receipts		\$2,891 00

Records and Other Fees.

Received from City Clerk for recording mort- gages, marriage certificates, assignments, etc., as per item No. 41 of receipts	\$512 00
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Read Fund Income.

Received from the trustees of the Read Fund, interest on in- vestments	\$1,800 00	
Received from L. E. Coffin, chairman, amount unex- pended on account of picnic	28 55	
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Total, as per item No. 42 of receipts		\$1,828 55

School Incidentals.

Received from Charles Tapply, refund of bill approved in error, as per item No. 43 of receipts		\$1 50
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Ships Engaged in Foreign Trade.

Received from Commonwealth of Massachu- setts on account of ships engaged in for- eign trade, as per item No. 45 of receipts		\$712 27
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Suspense Account.

Cash items not called for by sundry parties, (turned into treasury) as per item No. 46 of receipts		\$9 16
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State Aid.

Received from Commonwealth of Massachu- setts on account of sundry persons, under Chapter 301, Acts of 1889, as per item No. 47 of receipts		\$1,086 50
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Taxes of 1886.

Balance uncollected Dec. 31, 1890 . . .	\$1,052 25	
Received from sundry persons since Dec. 31, 1890, as per item No. 48 of receipts . . .	2 00	
		<hr/>
Balance uncollected Dec. 31, 1891 . . .	\$1,050 25	

Taxes of 1887.

Balance uncollected Dec. 31, 1890 . . .	\$1,720 87
Received from sundry persons since Dec. 31, 1890, as per item No. 49 of receipts . . .	4 00
	<hr/>
Balance uncollected Dec. 31, 1891 . . .	\$1,716 87

Taxes of 1888.

Balance uncollected Dec. 31, 1890 . . .	\$2,057 29
Received from sundry persons since Dec. 31, 1890, as per item No. 50 of receipts . . .	86 15
	<hr/>
Balance uncollected Dec. 31, 1891 . . .	\$1,971 14

Taxes of 1889.

Balance uncollected Dec. 31, 1890 . . .	\$6,397 99
Received from sundry persons since Dec. 31, 1890, as per item No. 51 of receipts . . .	4,069 68
	<hr/>
Balance uncollected Dec. 31, 1891 . . .	\$2,328 31

Taxes of 1890.

Balance uncollected Dec. 31, 1890 . . .	\$94,376 16
Received from sundry persons since Dec. 31, 1890, as per item No. 52 of receipts . . .	77,825 31
	<hr/>
Balance uncollected Dec. 31, 1891 . . .	\$16,550 85

Taxes of 1891.

Amount assessed for state tax . . .	\$25,545 00
Amount assessed for county tax . . .	27,421 81
Amount assessed for city tax . . .	517,122 00
Overlay	6,009 09
	<hr/>
	\$576,097 90
Received from sundry persons to Dec. 31, 1891, as per item No. 53 of receipts . . .	446,284 47
	<hr/>
Balance uncollected Dec. 31, 1891 . . .	\$129,813 43

Tuition for Non-resident Pupils.

Received from sundry non-residents for tuition, as per item No. 54 of receipts . . .	\$319 75
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Temporary Loans.

Borrowed during the year, by authority of the City Council (in anticipation of taxes), for the payment of current expenses :—

Jan. 9. Stedman, Steere & Wheeler, at 5 per cent. per annum	\$20,000 00
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Jan. 29. New England Trust Co. at 4 1-2 per cent. per annum	30,000 00
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March 13. New England Mutual Life Insurance Co., at 4 1-2 per cent. per annum	60,000 00
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April 11. Sinking Fund Commissioners of City of Boston at 4 1-4 per cent. per annum.	30,000 00
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May 29. New England Trust Co. at 4 1-4 per cent. per annum.	30,000 00
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June 20. Sinking Fund Commissioners of City of Boston at 4 1-2 per cent. per annum.	50,000 00
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Sept. 2. New England Trust Co. at 4 per cent. per annum	50,000 00
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Sept. 14. Suffolk Savings Bank at 5 per cent. per annum	25,000 00
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Sept. 14. Stedman, Steere & Wheeler at 4 7-8 per cent. per annum	15,000 00
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Sept. 16. Commonwealth of Massachusetts at 4 1-2 per cent. per annum	25,000 00
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<i>Amount carried forward,</i>	\$335,000 00
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<i>Amount brought forward</i>	\$335,000 00
Nov. 28. Trustees of Read Fund at 4 1-4 per cent. per annum.	40,000 00
Dec. 19. W. H. Edgerly at 4 per cent. per annum . . .	25,000 00
Dec. 21. W. F. Lawrence trustee at 4 1-4 per cent. per annum	10,000 00
Dec. 22. Stedman, Steere & Wheeler at 4 1-8 per cent. per annum	15,000 00
Total as per item No. 55 of receipts .	\$425,000 00

Water Meters, Rents.

Received from sundry persons for rent of meters, as per item No. 57 of receipts .	\$3,985 70
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Water Meters and Service Pipe.

Received from sundry persons for service pipe, labor, etc., as per item No. 58 of receipts	\$5,515 69
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Water Rates.

Received from sundry persons for use of water in 1891 by schedule rates, as per item No. 59 of receipts	\$22,874 24
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Water Rates by Meters.

Received from sundry persons for use of water in 1891 by meters, as per item No. 60 of receipts	\$52,470 43
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Watering Streets.

Received from sundry persons, contributors toward expense of watering streets, as per item No. 61 of receipts	\$4,038 64
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Peddler's Licenses.

Received from sundry persons for licenses, as per item No. 62 of receipts	\$125 00
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STATEMENT IN DETAIL OF EXPENSES WITH APPROPRIATIONS, TRANSFERS, AND BALANCES.**Almshouse Expenses and Repairs.**

Appropriation	\$4,500 00	
Transferred to appropriation for poor out of Almshouse by order of City Council	700 00	
		\$3,800 00
N. D. Moody, services as warden	700 00	
N. D. Moody, sundry cash pay- ments	289 86	
Eliza A. Moody, services as ma- tron	100 00	

SERVICES AT ALMSHOUSE.

John L. Willey	163 80
Mrs. L. A. Willey	109 20
Henry W. Johnson	56 50
George W. Henderson	51 00
John T. Moody	49 80
Maggie J. Henderson	36 00
Burns Nickerson	15 00
Hugh Moses	12 00
Dr. James Utley, medical atten- dance	75 00
<i>Amount carried forward,</i>	<i>\$1,658 16</i>

Amount brought forward, \$1,658 16

MEDICINE.

Sherman N. Sears	29 60
George H. Ingraham	20 75
Dr. H. E. Johnson, dental service	1 50
George H. Gregg, funeral expenses	15 00

GROCERIES AND PROVISIONS.

Crocker & Eldredge	360 60
H. A. Sherman	120 40
E. Moulton	5 13
V. A. Pluta	225 34
Wm. Henry Brackett	5 04

BEEF.

Armour & Co.,	30 60
E. C. Swift & Co.,	11 79
L. A. Whitaker	6 00
Frank Linnell, fish and oysters	61 11
George H. Ellis, ice	33 37
J. W. Mitchell, coal	262 25
Wm. H. Mague, exchange of horses	350 00
David Jackson, manure	60 00
H. Barker & Co., swill	29 60
Water Department, use of water	56 45
J. C. Farrar, blacksmithing . .	51 08
Charles A. Cole	2 50
M. E. Society, rent of pew . .	15 00
Schlegel & Fottler, seeds . . .	15 18
Luther E. Leland, rent of barn	12 00

Amount carried forward, \$3,438 45

<i>Amount brought forward,</i>	\$3,438 45
Oliver Morse & Son, grinding corn	5 46

GRAIN.

C. F. Eddy & Co.,	95 14
H. W. Crowell	11 00

MATERIAL AND LABOR.

O. F. Lucas	47 45
William Pettigrew	23 59
Temperley & Hurley	12 00
H. H. Hunt	10 34
J. O. Evans' Son	9 77
M. S. Hodgson	8 83
A. J. Fiske & Co.	3 90

SUPPLIES.

Everett E. Moody	173 32
George W. Simmons & Co. . .	52 50
J. Henry Bacon	16 80
Pettee Machine Works	2 75
J. L. Sears	1 90

Total, as per item No. 1 of expenses	<u>\$3,913 20</u>
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Amount overdrawn transferred into excess and deficiency account	\$113 20
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Armory Expenses.

Appropriation	\$1,000 00
B. S. Wetherbee, services as janitor	\$350 00
Newton and Watertown Gas Light Co., gas	213 26
<i>Amounts carried forward,</i>	<u>\$563 26</u>
	\$1,000 00

<i>Amounts brought forward,</i>	\$563 26	\$1,000 00
C. F. Eddy & Co., coal and wood	115 99	
Water Department, connection with sewer	67 41	
Boston & Albany R. R. Co., use of gravel pit	25 00	
Water Department, use of water	12 00	
Myles J. Joyce, labor on grounds	50 00	
M. C. Higgins, material and labor	57 73	
A. R. Carley, material and labor	20 00	
Charles A. Hill, material and labor	14 88	

Total, as per item No. 2 of expenses		\$926 27
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Balance unexpended, transferred into excess and deficiency account		\$73 73
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Assessors' Department.

Appropriation,	\$10,400 00
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ASSESSORS.

Samuel Jackson, (Chairman) .	\$900 00
Howard B. Coffin, Assessor .	900 00
Charles A. Miner, assessor and clerk of board	1,500 00

ASSISTANT ASSESSORS.

Thomas C. Parks, Ward 1 .	68 00
A. A. Savage, Ward 2 . .	216 00
Willard P. Plimpton, Ward 3 .	136 00

<i>Amounts carried forward</i>	\$3,720 00	\$10,400 00
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<i>Amounts brought forward,</i>	\$3,720 00	\$10,400 00
Bernard Early, Ward 4 . .	114 00	
Otis Pettee, Ward 5 . .	108 00	
George Warren, Ward 6 . .	94 00	
Edward W. Cobb, Ward 7 . .	144 00	

CLERICAL ASSISTANCE.

Frank Jordan	363 00
Miss Caroline M. Jordan . .	302 65
Miss Nellie M. Heywood . .	267 00
Miss Carrie Blodgett . . .	128 00
Miss L. G. Thompson . . .	104 00
Miss Grace Thompson . . .	8 00
H. W. Mason, abstract of deeds	503 00

PRINTING AND ADVERTISING.

Fred. G. Barker	219 02
Fanning Printing Co. . . .	61 61
Rockwell & Churchill . . .	12 00
Newton Journal	72 75
The Newton Graphic	72 75
Samuel M. Jackson, use of team	80 00
Howard B. Coffin, use of team .	50 00
Charles A. Miner, sundry cash expenses	75 60
C. L. Bourne, stamped envelopes	37 80
E. B. Stillings, binding books .	19 50
The Banker & Tradesman, subscription	5 00
H. H. Hunt, material and labor	17 96
Mosler Safe Co., labor on safe	12 00
C. H. Jennison, expressage . .	25

SUPPLIES.

Samuel Ward Co. . . .	95 20
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<i>Amounts carried forward,</i>	\$6,687 09	\$10,400 00
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<i>Amounts brought forward,</i>	\$6,687 09	\$10,400 00
Aaron R. Gay & Co. . . .	24 53	
Seavey & Co.	7 05	
O. F. Lucas	4 50	
H. C. Dimond & Co. . . .	2 40	
	<hr/>	
	\$6,725 57	

ON ACCOUNT OF BLOCK SYSTEM.

Amount as per pay-rolls of City Engineer's As- sistants in per- fecting plans .	\$3,098 10
Albert F. Noyes, et al., sundry cash expenses .	51 49
Miss E. F. McCarty, clerical as- sistance . . .	20 00

BOARD OF HORSES.

Charles G. Tink- ham . . .	25 70
Stephen F. Cate .	22 14

SUPPLIES.

W. W. White & Co. . . .	50 30
Willard K. Rice .	36 45
B. Illfelder .	25 38
Library Bureau .	15 20
Asa L. Shipmans' Sons . . .	10 80
	<hr/>
	3,355 56

Total as per item No. 3 of expenses . \$10,081 13

Balance unexpended, transferred into excess and deficiency account	\$318 87
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Bath House.

Appropriation	\$200 00
Charles Tapply, care of bath house	\$94 00
Frank Whidden, care of bath house	76 00
A. A. Savage, supplies	3 70
 Total as per item No. 4 of expenses	 173 70

Balance unexpended, transferred into excess and deficiency account	\$26 30
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Books, Stationery and Printing.

Appropriation,	\$3,500 00
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PRINTING, ETC.

Fanning Printing Co.	\$1,367 98
The Newton Graphic	340 82
Newton Journal	327 20
Rockwell & Churchill	50 33
Fred. G. Barker	5 50
Edgar A. Brown	1 25

STAMPS AND STAMPED ENVELOPES.

Charles H. Stacy	505 30
Newton Post Office	209 70
American Bank Note Co., check books	68 00
Drew, Allis & Co., Newton direc- tories	60 00
Sampson, Murdock & Co., Bos- ton directories	36 00

<i>Amounts carried forward,</i>	\$2,972 08	\$3,500 00
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<i>Amounts brought forward,</i>	\$2,972 08	\$3,500 00
George Walker & Co., Atlas of Massachusetts	45 00	
J. D. F. Brooks, binding of books	15 40	
Boston Daily Advertiser, sub- scription	19 50	
Journal Newspaper Co., adver- tising	13 00	
Little, Brown & Co., Mass. Stat- utes	5 95	
A. Storrs & Bement Co., paper	4 73	
J. S. Roberts, expressage . .	1 25	

SUPPLIES.

Aaron R. Gay & Co. . . .	143 79
Thomas Groom & Co. . . .	115 50
J. L. Fairbanks & Co. . . .	69 55
M. R. Warren	39 60
Hooper, Lewis & Co. . . .	39 45
Samuel Ward Co.	33 95
J. Q. Bradish & Co. . . .	11 70
W. M. Belcher & Co. . . .	5 94
Samuel Hobbs & Co. . . .	3 75
Little, Brown & Co. . . .	3 10
C. J. Bailey & Co.	2 00
Asa L. Shipman's Sons . . .	1 75
Sundry small bills	2 93

Total as per item No. 5 of ex-
penses

\$3,549 92

Amount overdrawn, transferred into excess
and deficiency account

49 92

Board of Health.

Appropriation		\$5,680 00
Wm. S. French, clerk and agent of board	\$1,250 00	
Isaac F. Kingsbury, agt. of Board	50 00	
Charles H. Johnson, services .	392 00	
W.H. Mague, collecting house offal	2,850 00	

USE OF TEAMS.

Stephen F. Cate	477 00
Geo. W. Bush	12 50

SERVING SUMMONS.

Wm. S. French.	6 20
Rodney M. Lucas	2 50

PRINTING AND ADVERTISING.

Fanning Printing Co.	72 75
The Newton Graphic	69 50
Newton Journal	46 75

VACCINATIONS.

Dr. D. Waldo Stearns	35 50
Dr. Fred. E. Crockett	10 50
Dr. Eben Thompson	7 50
Dr. J. F. Frisbie	4 50

MEDICAL SERVICE.

Dr. Austin Peters	5 00
Dr. David E. Baker	4 00
Thomas Goode, services as nurse	25 00
Arthur Hudson, analysis of water	5 00
John Flood et al., return of deaths	88 50

Amounts carried forward, \$5,414 70 \$5,680 00

Amounts brought forward, \$5,414 70 \$5,680 00

Wm. S. French, sundry cash

expenses 65 80

PATROLMEN.

John J. Boyce 37 50

Daniel J. Corcoran 2 50

LABOR.

Edward Pendergast, on ash
dumps 335 58

Michael McCarty, on Elm street
drain 19 25

Wm. Donahoe, on Elm street
drain 14 00

James Donahoe, on Elm street
drain 10 50

John H. Bland et al., cleaning
Mason school 68 04

A. Bowman et al., cleaning Bar-
nard school 10 46

EXPRESSAGE.

Charles H. Jenison 4 54

F. H. Hunting 2 00

Samuel Moseley et al., burying
dogs, etc. 20 50

Damrell & Upham, book 4 50

MATERIAL AND LABOR.

J. W. Conroy & Son 20 23

H. H. Hunt 13 33

O. F. Lucas 11 85

F. H. Humphrey, agent 4 60

O'Brien & Purdy 3 56

Wm. H. French & Co. . . . 2 80

Amounts carried forward,

\$6,066 24

\$5,680 00

<i>Amounts brought forward</i>	\$6,066 24	\$5,680 00
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SUPPLIES.

Weeks & Potter Co.	. .	116 39
George H. Ingraham	. .	26 43
Edwin J. Dill	. . .	25 00
Joseph Lee	. . .	13 50
Jordan, Marsh & Co.	. .	13 20
E. W. Keyes	. . .	8 75
S. O. Thayer & Co.	. . .	5 25
John J. Noble	. . .	4 81
C. N. Allen & Co.	. . .	3 35
A. J. Fiske & Co.	. . .	2 85
A. W. Snow	. . .	2 55
Arthur Hudson	. . .	2 30
H. S. Williams	. . .	2 05
Newton Odorless Excavating		
Co., cleaning cesspool	. .	2 50
Sundry small bills	. . .	6 52

Total, as per item No. 6 of expenses	\$6,301 69
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Amount overdrawn, transferred into excess and deficiency account	\$621 69
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Board of Health.

DRAINAGE OF MAGUE MEADOW, SPECIAL APPROPRIATION.

Appropriation	\$17,000 00
John A. Kenrick, Treasurer, amount paid laborers, etc., as per pay rolls . . .	\$8,044 18
John A. Kenrick, Treasurer, amount paid laborers as per discharge tickets . .	280 28

<i>Amounts carried forward,</i>	\$8,324 46	\$17,000 00
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<i>Amounts brought forward,</i>	\$8,324 46	\$17,000 00
M. W. Sands, brick . . .	4,237 50	
Smith & Green, cement . . .	656 00	
C. A. Harrington, lumber . . .	500 39	
Thomas F. Mague, sand . . .	237 60	
Boston & Albany R. R. Co., freight	101 05	
Parker, Holmes & Co., rubber boots	87 90	
Chelmsford Foundry Co., frames and covers	82 50	
S. D. Keegan, blacksmithing . . .	37 91	
C. F. Eddy & Co., coal . . .	12 36	
C. H. Jenison, expressage . . .	2 12	

USE OF TEAMS.

Thomas F. Mague	286 61
Stephen F. Cate	78 00
Michael McDonald	26 37

CAR TICKETS.

Stephen Childs	115 00
Newton street railway	25 00

MATERIAL AND LABOR.

M. Frank Lucas	210 78
Wright & Scorgie	28 00
O. F. Lucas	2 88

SUPPLIES.

Perrin, Seamans & Co.	134 05
A. J. Fiske & Co.	17 58

<i>Amounts carried forward</i>	\$15,204 06	\$17,000 00
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<i>Amounts brought forward,</i>	\$15,204 06	\$17,000 00
H. E. Woodberry	8 67	
Walworth Mfg. Co. . . .	5 00	
George W. Dearborn . . .	3 50	
G. A. Tuttle & Co. . . .	2 73	
G. H. Baker & Co. . . .	62	

Total, as per item No. 7 of expenses \$15,224 58

Burial Grounds.

Appropriation		\$400 00
Henry Ross, services as superin-		
tendent, labor, etc. . . .	\$366 45	
Thomas F. Mague, material and		
labor	19 25	
C. A. Harrington, lumber .	10 52	

Total, as per item No. 8 of expenses 396 22

Balance unexpended, transferred into excess
and deficiency account \$3 78

Burial of Deceased Soldiers.

Appropriation		\$200 00
Stephen F. Cate, funeral ex-		
penses	\$35 00	
James M. Fitzgerald, funeral		
expenses	35 00	

Total, as per item No. 9 of expenses \$70 00

Balance unexpended, transferred into excess
and deficiency account \$130 00

City Engineer's Department.

Appropriation	\$8,635 00	
<i>Amount carried forward,</i>		\$8,635 00

<i>Amount brought forward,</i>	\$8,635 00	
Transferred from appropriation for miscellaneous expenses by order of City Council .	1,000 00	
	<hr/>	\$9,635 00
Albert F. Noyes, services as City Engineer	\$2,500 00	
Pay rolls of assistant engineers, transit and rod men, etc., .	3,568 76	

CLERICAL ASSISTANCE.

Miss J. A. Pond	620 00
Miss Ella F. McCarty . . .	192 00
Mrs. Stella J. Vose	63 00
Incidental office expenses of Engineer and assistants .	222 28

INSTRUMENTS.

Buff & Berger	1,070 10
Charles G. Hutchinson . . .	26 00

BOARD OF HORSES.

Stephen F. Cate	252 13
C. G. Tinkham	249 82
J. R. McLaughlin, care of sick horses	47 00

BLACKSMITHING.

P. A. McVicar	52 65
Andrew Peters	45 73
J. A. Nugent	22 91
Charles A. Cole	5 00
D. J. O'Donnell	3 50
P. A. McVicar, new wagon .	155 00
J. C. Farrar, sleigh	22 00

<i>Amounts carried forward,</i>	\$9,117 88	\$9,635 00
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<i>Amounts brought forward,</i>	\$9,117 88	\$9,635 00
M. Frank Lucas, stakes . . .	25 41	
Bacon & Co., spikes . . .	11 11	
W. W. White & Co., atlas of Newton	10 80	
Charles H. Stacy, telegrams .	10 24	
C. H. Jenison, expressage .	9 25	

MATERIAL AND LABOR.

Alex. Griswold	10 60
Whitney & Wilson	4 95
Hewes & Mays	2 00

SUPPLIES.

Frost & Adams	166 43
Dame, Stoddard & Kendall .	107 52
Wadsworth, Howland & Co .	78 71
Tobias & Wall	18 00
Charles Spaulding	13 77
Grundy Brass Works	13 50
Manahan Parchment and Moth Paper Works	8 40
Winkley, Dresser & Co. . . .	7 50
Wyckoff, Seamans & Benedict .	4 50
Hammond Typewriter Co. . .	3 80
Thomas Groom & Co.	2 00
Sundry small bills	3 30

Total, as per item No. 10 of expenses	\$9 629 67
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Balance unexpended, transferred into excess and deficiency account	\$5 33
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City Hall Expenses.

Appropriation	\$2,300 00
<i>Amount carried forward,</i>	\$2,300 00

<i>Amount brought forward,</i>		\$2,300 00
Newton and Watertown Gas Light Co., incandescent lighting	\$804 55	
Newton and Watertown Gas Light Co., gas	466 68	
J. D. Wellington, incidental expenses	542 61	
C. F. Eddy & Co., coal	552 33	
Water Department, use of water	52 05	
Almshouse Department, wood	13 50	
A. D. Lougee, ice	10 00	
Simon A. White, cleaning car- pets	39 51	
The Germicide Co., disinfectant	35 00	
Otis McFadden, shades	14 00	
George T. Hoyt & Co., awning	5 50	
Leander Barber, brooms	2 75	
C. E. Hastings, repairing clocks	3 75	
C. H. Jenison, expressage	7 68	
J. S. Roberts	4 10	
Wilson's express	75	

MATERIAL AND LABOR.

W. H. French & Co.	77 07
H. H. Hunt	55 02
G. S. Dalby & Co.	23 10
F. H. Humphrey, agent	17 08
Christopher Needham	10 00
Henry Hauf	2 25

SUPPLIES.

H. Barnard & Co.	14 25
O. F. Lucas	6 80
Charles A. Austin & Co.	6 25

<i>Amounts carried forward</i>	\$2,766 58	\$2,300 00
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<i>Amounts brought forward,</i>	\$2,766 58	\$2,300 00
Henry W. Wellington	3 75	

Total as per item No. 11 of expenses	\$2,770 33
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Amount overdrawn, transferred into excess and deficiency account	\$470 33
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Elections and Registration of Voters.

Appropriation	\$3,900 00
George E. Bridges, registrar (chairman)	\$250 00
Isaac F. Kingsbury, registrar (clerk)	250 00
George H. Bourne, registrar	100 00
Amos L. Hale, registrar	100 00
Carrie Blodgett, clerical assist- ance	72 00
Fred. H. Barnes, clerical assist- ance	2 00
John C. Brimblecom, services	5 00
Theo. A. Fleu, services	5 00
Fanning Printing Co., printing	372 47
Newton Journal, advertising, etc.	180 00
The Newton Graphic, advertis- ing	141 75
Drew, Allis & Co., maps of Newton	50 00
H. A. Spear, storage	5 00
M. C. Laffie, serving notices, etc.	246 51
Rodney M. Lucas, serving war- ants	37 40

RENT OF HALLS.

C. W. Turner, Nonantum Hall	35 00
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<i>Amounts carried forward,</i>	\$1,852 13	\$3,900 00
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<i>Amounts brought forward,</i>	\$1,852 13	\$3,900 00
Newton Centre Associates Hall	30 00	
F. W. Freeman, Freeman Hall .	28 00	
W. S. Richards, Stevens Hall .	25 00	
C. H. Tainter, Tremont Hall .	20 00	
George H. Gregg, Central Block	5 00	
S. N. Sears, Freeman Hall .	5 00	

SERVICES AS JANITORS.

J. L. Randall	8 00	
Martin Walsh	8 00	
Alex. Chisholm	7 00	
B. S. Wetherbee	4 00	
Richard H. Murphy . . .	3 00	
John W. Ghant, labor . .	6 50	
H. H. Hunt, material and labor	29 30	
H. W. Pierce, material and labor	11 50	

USE OF TEAMS.

Stephen F. Cate	52 00	
S. L. Pratt	38 00	
H. A. Spear	18 75	
Henry C. Daniels	17 50	
J. Frank Makee	13 50	
A. F. Harrington	13 00	
C. G. Tinkham	9 00	
W. H. McIntosh	9 00	
Fitzgerald Brothers . . .	6 00	
Robert Weir	4 00	
Smith & Hoseason, use of team	2 00	
Lunt & Colburn, use of team .	2 00	

SUPPLIES.

Aaron R. Gay & Co. . . .	56 08	
Wilson & Marshall	25 50	

<i>Amounts carried forward,</i>	\$2,308 76	\$3,900 00
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<i>Amounts brought forward,</i>	\$2,308 76	\$3,900 00
Thomas Groom & Co. . . .	15 68	
J. L. Fairbanks & Co. . . .	7 42	
F. W. Barry, Beale & Co. . .	3 22	

ELECTION OFFICERS—WARD 1, PRECINCT 1.

John E. Butler, warden . . .	\$15 00	
William M. Jones, deputy warden	6 00	
Seth C. Stevens, clerk . . .	15 00	
Marshall L. Blanchard, inspector	12 00	
John W. Keefe, inspector . .	13 00	
Willie M. Russell, inspector .	13 00	
Francis H. Murray, inspector .	13 00	
Herbert L. Wood, deputy inspector	6 00	
Richard M. Lyons, deputy inspector	5 00	
Irving T. Fletcher, deputy inspector	6 00	
John Cutler, deputy inspector .	3 00	

WARD 2, PRECINCT 1.

Henry P. Dearborn, warden . .	15 00	
Charles B. Lowell, deputy warden	6 00	
Louis E. G. Green, clerk . . .	5 00	
S. K. Billings, clerk and deputy clerk	13 00	
Louis E. Binney, deputy clerk	3 00	
L. H. Cranitch, inspector . .	13 00	
Louis Watson, inspector . . .	13 00	
Edward M. Rumery, inspector .	13 00	
James D. Billings, inspector .	13 00	

<i>Amounts carried forward,</i>	\$2,536 08	\$3,900 0
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<i>Amounts brought forward,</i>	\$2,536 08	\$3,900 00
Andrew J. McFaden, deputy inspector	6 00	
Patrick A. Mulligan, deputy inspector	6 00	
Theodore G. Cutler, deputy in- spector	6 00	
Arthur C. Walkins, deputy in- spector	6 00	

WARD 2, PRECINCT 2.

Willard S. Higgins, warden .	5 00	
Albert H. Sisson, warden and deputy warden	13 00	
Henry E. Sisson, deputy warden	3 00	
James W. Page, clerk	15 00	
James H. Page, deputy clerk .	6 00	
W. W. Palmer, inspector . . .	13 00	
Albert A. Savage, inspector .	13 00	
George M. Bridges, inspector .	13 00	
John W. Cotton, inspector . .	13 00	
C. H. Johnson, deputy inspector	6 00	
Uriah H. Dyer, deputy in- spector	6 00	
W. S. Cunningham, deputy in- spector	6 00	
C. W. Richardson, deputy in- spector	3 00	

WARD 3, PRECINCT 1.

Harvey C. Wood, warden .	\$15 00	
Frank E. Hunter, deputy warden	6 00	
George S. Dalby, clerk	15 00	
Eugene F. Conroy, deputy clerk	6 00	
Arthur R. Coe, inspector . . .	13 00	

<i>Amounts carried forward,</i>	\$2,730 08	\$3,900 00
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<i>Amounts brought forward,</i>	\$2,730 08	\$3,900 00
Waldo L. Plimpton, inspector .	13 00	
F. H. Humphrey, inspector .	13 00	
John W. Gaw, inspector . .	13 00	
Charles A. Wyman, deputy in- specter	6 00	
Frank C. Sheridan, deputy in- specter	6 00	
Severance Burrage, deputy in- specter	6 00	
G. B. Freeland, deputy in- specter	3 00	

WARD 4, PRECINCT 1.

Fred. Plummer, warden . . .	\$15 00	
Albert F. Tucker, deputy war- den	6 00	
G. Lyman Snow, clerk . . .	15 00	
Colon S. Ober, deputy clerk .	6 00	
Henry Washburn, inspector .	13 00	
Thomas Cunningham, inspector	13 00	
C. B. Ashendon, inspector .	12 00	
W. C. Brown, inspector . . .	12 00	
C. W. Fordham, deputy in- specter	6 00	
T. C. Donovan, deputy inspector	6 00	
Jacob Pratt, Jr., deputy in- specter	6 00	
Carl H. Bunker, deputy in- specter	5 00	

WARD 4, PRECINCT 2.

Wm. R. Dimond, warden .	\$15 00	
Wm. S. Ware, deputy warden .	6 00	

<i>Amounts carried forward,</i>	\$2,926 08	\$3,900 00
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<i>Amounts brought forward,</i>	\$2,926 08	\$3,900 00
Edward H. Kenney, clerk .	15 00	
James A. Early, deputy clerk .	6 00	
Frederick W. Fuller, inspector	13 00	
Andrew B. Hayden, inspector .	13 00	
John Dolan, inspector . . .	13 00	
T. R. Raymond, inspector .	13 00	
Peter C. Baker, deputy in- specter	6 00	
H. T. Wiswall, deputy inspector	6 00	
Fred. C. Lyon, deputy inspector	6 00	
O. S. McCourt, deputy inspector	6 00	

WARD 5, PRECINCT 1.

Albert J. Grover, warden .	\$15 00	
John W. Howe, deputy warden	6 00	
Frank W. Barney, clerk . . .	15 00	
C. B. Bancroft, deputy clerk .	6 00	
Erastus Gott, inspector . . .	13 00	
Otis Pettee, inspector . . .	13 00	
Frank Fanning, inspector .	13 00	
Daniel Kelleher, inspector .	13 00	
J. F. Brown, deputy inspector .	6 00	
Eben Thompson, deputy in- specter	3 00	
J. E. Connors, deputy inspector	6 00	
B. S. Ford, deputy inspector .	6 00	
Stephen Keyes, deputy in- specter	2 00	

WARD 5, PRECINCT 2.

Samuel L. Eaton, warden .	\$15 00	
True T. Locke, deputy warden	6 00	
Edward H. Carey, clerk . . .	15 00	
<i>Amounts carried forward,</i>	<hr/> \$3,176 08	<hr/> \$3,900 00

<i>Amounts brought forward,</i>	\$3,176 08	\$3,900 00
E. H. Greenwood, deputy clerk	6 00	
Charles P. Clark, inspector .	13 00	
Horace W. Taylor, inspector .	13 00	
Fred. A. O'Connor, inspector .	13 00	
George F. Leonard, inspector .	13 00	
H. W. Holbrook, deputy in- specter	6 00	
E. J. Clifford, deputy inspector	6 00	
Newton Crane, deputy inspector	6 00	
Eleazer Thompson, deputy in- specter	6 00	

WARD 6, PRECINCT 1.

Samuel M. Jackson, warden .	\$15 00	
Asa C. Jewett, deputy warden .	6 00	
Zadoc Long, clerk	15 00	
A. E. Fowle, deputy clerk .	6 00	
James W. Hill, inspector .	13 00	
D. H. McWain, inspector .	13 00	
George Warren, inspector .	5 00	
Howard Carleton, inspector .	6 00	
H. A. Tomlinson, inspector and deputy inspector	11 00	
Walter Thorpe, inspector and deputy inspector	11 00	
Walter H. Thorpe, deputy in- specter	6 00	
F. A. Mason, deputy inspector .	5 00	

WARD 7, PRECINCT 1.

Amasa W. B. Huff, warden .	\$15 00	
E. L. Lemon, deputy warden .	6 00	
Moses Clark Jr., clerk	15 00	

<i>Amounts carried forward</i>	\$3,406 08	\$3,900 00
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<i>Amounts brought forward,</i>	\$3,406 08	\$3,900 00
Henry C. Daniels, deputy clerk	6 00	
Robert B. Edes, inspector	13 00	
Joseph W. Howard, inspector	13 00	
Geo. W. Lamson, inspector	13 00	
Francis A. Barrows, inspector	13 00	
R. A. Brackett, deputy inspector	6 00	
M. L. Clark, deputy inspector	6 00	
M. V. B. Paine, deputy in- specter	6 00	
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Total, as per item No. 12 of expenses		\$3,482 08
		<hr/>
Balance unexpended, transferred into excess and deficiency account		\$417 92

Fire Department.

Appropriation	\$29,987 00	
Additional appropriation by or- der of City Council	10,625 00	
	<hr/>	\$40,612 00
Henry L. Bixby, Chief of De- partment	\$1,700 00	

STEAMER NO. 1.

F. E. Judkins, engi- neer	\$1,000 00		
W. M. Morey, driver	406 70		
F. A. Dexter, driver	394 10		
P. C. Carroll, driver			
Hose 1	650 00		
E. W. Lyons, fore- man	110 00		
	<hr/>	<hr/>	<hr/>
<i>Carried forward,</i>	\$2,560 80	\$1,700 00	\$40,612 00

<i>Brought forward,</i>	\$2,560 80	\$1,700 00	\$40,612 00
J. F. Horrigan, as-			
sistant foreman			
and secretary .	105 00		

HOSEMEN.

John McCammon .	\$100 00		
Walter Pingree .	100 00		
A. R. Carley . .	100 00		
W. A. Alfred . .	100 00		
C. O. Higbee, Jr. .	100 00		
B. F. Tripp, fireman	100 00		
	————	\$3,265 80	

STEAMER NO. 2, AND CHEMICAL A.

R. S. Cummings, en-			
gineer . . .	\$1,000 00		
J. F. Saunders, driver	793 40		
C. L. Berry, driver .	6 60		
W. M. Morey, driver			
Hose 2 . . .	315 00		
J. F. Calden, driver			
Hose 2 . . .	325 00		
J. F. Saunders, driver			
Hose 2 . . .	5 40		
F. H. Humphrey,			
foreman . . .	110 00		
H. W. Nichol, assist-			
ant foreman and			
secretary . . .	105 00		

HOSEMEN.

George F. Saunders .	\$100 00		
E. P. Kebbe . . .	100 00		
J. L. Christie . . .	100 00		
	————	————	————
<i>Carried forward</i>	\$2,960 40	\$4,965 80	\$40,612 00

<i>Brought forward,</i>	\$2,960 40	\$4,965 80	\$40,612 00
C. H. Morse . .	100 00		
J. A. King . .	62 51		
E. S. Haynes . .	37 50		
W. H. Fiske . .	25 00		
	<hr/>	\$3,185 41	

STEAMER NO. 3.

A. D. Colby, engineer	\$1,000 00
P. E. Ellis, driver .	797 80
W. H. Ayles, Jr., driver Hose 3 .	320 40
E. J. Hennrikus, driver Hose 3 .	325 43
A. J. English, fore- man . .	110 00
S. F. Chadbourne, as- sistant foreman and secretary .	105 00

HOSEMEN.

C. B. Garey . .	100 00
D. McDonald . .	100 00
C. J. Polley . .	100 00
C. E. Thompson .	100 00
W. B. Polley . .	100 00
J. McMahon . .	100 00
	<hr/>
	\$3,258 63

HOOK AND LADDER NO. 1.

J. E. Watson, driver	\$800 00
Martin Murphy, sub- stitute driver .	28 47
M. C. Higgins, fore- man . .	55 00

<i>Carried forward,</i>	\$883 47	\$11,409 84	\$40,612 00
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<i>Brought forward.</i>	\$883 47	\$11,409 84	\$40,612 00
Willard S. Higgins, foreman . . .	55 00		
F. B. Sisson, assist- ant foreman and secretary . . .	105 00		

LADDERMEN.

O. Dow . . .	100 00
T. C. Nickerson . .	100 00
John Beal . . .	100 00
Charles Coleman . .	100 00
U. H. Dyer . . .	100 00
J. F. Horrigan . .	100 00
J. B. Watts . . .	100 00
M. McLeod . . .	100 00
A. A. Savage . . .	100 00
J. H. Williams . .	16 00

 \$1,959 47

HOOK AND LADDER NO. 2 AND CHEMICAL B.

J. S. Williams, Lieu- tenant of Chemi- cal B . . .	\$406 70
W. H. Ayles, Jr., driver . . .	406 70
F. A. Dexter, driver truck 2 . . .	405 90
S. W. Cobbett, fore- man . . .	55 00
Charles Marsters, as- sistant foreman and secretary . .	52 50

<i>Carried forward,</i>	\$1,326 80	\$13,369 31	\$40,612 00
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<i>Brought forward</i>	\$1,326 80	\$13,369 31	\$40,612 00
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LADDERMEN.

W. F. Heal . .	50 00		
C. E. Nash . .	50 00		
B. G. Stronach . .	50 00		
F. N. Marsters . .	50 00		
W. B. McMullen . .	50 00		
J. L. Randall . .	50 00		
J. C. Esterbrook . .	50 00		
Jos. L. Richardson . .	50 00		
	————	\$1,726 80	

HOSE NO. 4.

Edwin A. Jones, driver . .	\$621 45
Wm. M. Morey, . .	5 40
E. C. Waterhouse, foreman . .	110 00
A. J. Wandless, as- sistant foreman and secretary . .	105 00

HOSEMEN.

D. Archibald . .	100 00		
E. Joyal	100 00		
N. P. Snell	58 33		
	————	\$1,100 18	

HOSE NO. 5.

J. S. Williams, driver	\$320 40
George M. Curtis, driver	325 43
J. F. Washburn, fore- man	110 00

<i>Carried forward</i>	\$755 83	\$16,196 29	\$40,612 00
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<i>Brought forward,</i>	\$755 83	\$16,196 29	\$40,612 00
J. U. Kimball, assistant foreman and secretary . .	105 00		

HOSEMEN.

John Frost . .	100 00		
C. H. Hall . .	100 00		
G. M. Curtis . .	45 83		
F. Chadwick . .	4 17		
	<hr/>	\$1,110 83	

HOSE NO. 6.

Oscar A. Colby, driver . .	\$483 95		
D. J. Cooney, driver	169 20		
Bernard Early, foreman . .	110 00		
Daniel J. Corcoran, assistant foreman and secretary . . .	105 00		

HOSEMEN.

Patrick E. O'Neil .	100 00		
Timothy E. Healey .	100 00		
Andrew B. Hayden .	100 00		
	<hr/>	\$1,168 15	

HOSE NO. 7.

E. L. Richards, driver	\$596 55		
J. E. Trowbridge, driver . .	27 70		
W. S. Cargill, foreman . .	110 00		

<i>Carried forward,</i>	\$734 25	\$18,475 27	\$40,612 00
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<i>Brought forward,</i>	\$734 25	\$18,475 27	\$40,612 00
Harley A. Smith, as-			
sistant foreman			
and secretary .	105 00		

HOSEMEN.

J. E. Trowbridge .	100 00		
J. T. Thomason .	100 00		
G. H. Osborne .	100 00		
J. L. Randall . .	12 00		
	<hr/>	\$1,151 25	
George K. Stacy, re-			
lief engineer .	\$900 00		
N. P. Snell, vacation			
driver . . .	337 38		
Frank C. Rawson,			
vacation driver .	151 75		
J. F. Calden, vaca-			
tion driver .	48 28		
Sixteen firemen extra			
services July 4 .	48 00		
	<hr/>	\$1,485 41	

REPAIRS, SUPPLIES, AND INCIDENTALS.

W. H. Mague, three horses .	\$750 00		
W. E. Perkins, one pair horses .	600 00		
W. K. Porter, exchange of horse	250 00		
Valentine Stanley, gray horse .	225 00		
W. C. Hall, exchange of horse .	50 00		
Madison Bunker, veterinary ser-			
vice	201 00		
Robert Barton, veterinary ser-			
vice	23 00		
	<hr/>	<hr/>	
<i>Amounts carried forward,</i>	\$23,210 93	\$40,612 00	

Amounts brought forward, \$23,210 93 \$40,612 00

GRAIN.

George E. Johnson . . .	750 00
C. F. Eddy & Co. . . .	683 04
H. W. Crowell	527 64
N. W. Tupper	525 00
Albert Brackett & Son . .	524 56
E. Moulton	6 45
C. F. Eddy & Co., hay . .	40 86
C. F. Eddy & Co., straw . .	21 25

COAL.

C. F. Eddy & Co.	601 11
J. W. Mitchell	438 44
Albert Brackett & Son . .	70 91
B. C. Baker	62 50
Daniel Warren	24 30

WOOD.

Albert Brackett & Son . . .	10 75
J. W. Hill	8 25
Estate of B. C. Baker . . .	7 30
Moses G. Crane	4 00
B. C. Baker	2 90
Newton & Watertown Gas Light	
Co., gas	668 46
Water Department, use of water	170 77

BLACKSMITHING.

J. C. Farrar	184 48
P. A. Murray	126 00
B. F. Barlow	104 37

Amounts carried forward, \$28,774 27 \$40,612 00

<i>Amounts brought forward,</i>	\$28,774 27	\$40,612 00
J. A. Nugent	102 25	
Thomas Belger	71 10	
Charles A. Cole	61 70	
Murray & Farrell	57 70	
P. A. McVicar	51 65	
John W. Scott	44 26	
D. J. O'Donnell	22 65	
John Puleifer	21 14	
S. D. Keegan	7 25	
Delaney, Leland & Hewitt . .	5 25	
Stephen F. Cate, use of teams . .	60 50	

USE OF HORSES.

George H. Ellis	323 75	
William Walsh	75 25	
Timothy Stuart & Son	45 50	
John P. Keating	21 00	
Bernard McFaden	7 00	
Wm. H. Mague	5 25	
John Joyce	5 25	
John Leahey	5 25	
Daniel Murphy	3 00	
Thomas F. Mague	2 75	
Charles B. Bourne	1 75	
Highway Department, board of horses	97 00	

LAUNDRY WORK.

Waltham Steam Laundry . .	160 18	
Mrs. Thomas Pureill	27 16	
Mrs. Margaret Smith	5 00	
Mrs. Kate Furdon	4 69	

<i>Amounts carried forward,</i>	\$30,069 50	\$40,612 00
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<i>Amounts brought forward,</i>	\$30,069 50	\$40,612 00
Fire Extinguisher Mfg. Co., new hook and ladder truck and chemical engine .	4,850 00	
Alex. Griswold, new harness .	300 00	
Moses G. Crane, spring wagon .	185 00	
New England Gamewell Co., gong	125 00	
W. H. Wilson, firemen's hats .	54 00	
Boston Belting Co., hose . .	51 98	
A. W. Mitchell Mfg. Co., badges	49 15	
Mark W. Cross & Co., hoof remedy	26 00	
F. E. Judkins, electric trips .	75 90	
Charles H. Jenison, expressage	25 60	
Boston & Albany R. R. Co., freight	3 78	
Charles H. Stacy, telegrams .	6 81	
Henry L. Bixby, sundry cash expenses	28 61	
Alden Speare's Sons & Co., oil .	34 45	
Wm. F. Nye, oil	6 50	
Fanning Printing Co., printing	14 50	
Leander Barber, brooms . .	5 00	
C. E. Hastings, repairing clocks	6 25	

MATERIAL AND LABOR.

Alex. Griswold	343 99
Charles E. Berry	83 65
F. W. Stringe	57 75
P. Y. Hoseason	45 00
Fire Extinguisher Mfg. Co. .	40 25
Higgins & Nickerson . . .	33 14
E. S. Anderson	28 00

<i>Amounts carried forward,</i>	\$36,549 81	\$40,612 00
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<i>Amounts brought forward</i>	\$36,549 81	\$40,612 00
F. H. Humphrey, agt. . . .	24 47	
T. F. Glennan	15 85	
Ward & Co.	14 00	
Peter Gray	12 95	
Stephen Holmes	11 85	
Garey & English	10 64	
M. S. Hodgson	9 45	
Charles J. Polley	9 25	
Willard Rand	8 25	
Robbins & Healey	7 65	
Hill & Langtry	5 00	
A. L. Hahn	3 50	
H. W. Pierce	2 05	

LABOR.

C. S. Packard, unloading truck	20 00	
J. L. Randall	7 00	
William Welsh	7 00	
J. O. Watson	3 50	
Martin Murphy	2 00	
Mrs. S. Williams, sewing bed quilts	2 80	

SUPPLIES.

C. F. Hovey & Co.,	98 80	
Conelius Calahan Co., . . .	70 00	
Edward E. Rice & Co., . . .	42 27	
S. B. Ward	30 00	
Peck & Whipple Co.,	29 50	
Page & Coffin	28 75	
Ordway, Kimball & Loring . .	28 25	
Charles F. Shourds	26 25	
H. E. Woodberry	21 15	

<i>Amounts carried forward,</i>	\$37,101 99	\$40,612 00
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<i>Amounts brought forward,</i>	\$37,101 99	\$40,612 00
Scovill M'fg Co.	20 25	
C. G. Braxmar	19 50	
Newton & Watertown Gas L't Company	19 40	
W. C. Smith	18 00	
Isaac H. Snow	16 65	
N. England Tel. & Tel. Co.,	13 50	
A. A. Savage	12 90	
J. E. Trowbridge	11 10	
Boston Nickel Plating Co.,	10 73	
Revere Rubber Co.,	10 25	
Putnam & Co.,	10 00	
Henry W. Wellington	9 91	
George H. Ingraham	9 50	
S. O. Thayer & Co.,	9 15	
Barber Brothers	9 14	
H. W. Bigelow Co.,	9 00	
The Rhode Island Coupling Co.,	7 50	
E. R. Richmond	7 50	
Sherbourne & Co.,	6 11	
Joseph Lee	4 80	
B. F. Houghton	4 70	
I. R. Stevens	4 32	
Benjamin M. Wedger	4 00	
C. W. H. Moulton & Co.,	4 00	
John L. Twigg	3 00	
Abbot Downing Co.,	3 00	
Charles A. Ring	2 50	
F. E. Judkins	2 00	
John J. Noble	1 99	
W. C. Gaudelet	1 75	
Sundry small bills	13 49	
<i>Amounts carried forward,</i>	\$37,381 63	\$40,612 00

Amounts brought forward, \$37,381 63 \$40,612 00

FIRE ALARM TELEGRAPH.

W. B. Randlett, Assistant Chief, in charge of Fire and Police Telegraph	1,500 00
G. G. Perkins, lineman	800 00
J. Wiley Edmands, lineman . . .	68 63
New England Gamewell Co., Fire Alarm boxes .	503 75
C. H. Spring, poles .	174 50
E. E. Rice & Company, vitrol .	162 85
Washburn and Moen M'fg Co., wire .	122 89
S. L. Pratt, use of teams	37 75
Newton and Watertown Gas Light Co., gas	15 66
Garey & English, cross arms . . .	13 50
Eames' Express, expressage . . .	8 05
W. B. Randlett, sundry cash expenses	4 55

BLACKSMITHING.

Charles A. Cole .	60 30
J. C. Farrar . .	24 20

LABOR.

Arthur Muldoon .	45 50
Wm. Delaney . .	31 50
Wm. O'Hearn . .	31 50

Carried forward, \$3,605 13 \$37,381 63 \$40,612 00

<i>Am'ts brought forward,</i>	3,605 13	\$37,381 63	\$ 40,612 00
John Shay . . .	29 75		
John McCarty . . .	6 13		
Joseph Mann . . .	3 50		

MATERIAL AND LABOR.

P. Y. Hoseason . . .	6 50
F. H. Humphrey . . .	3 68

SUPPLIES.

New England Game- well Co., . . .	242 16
J. B. Prescott & Son . . .	36 20
Barber Brothers . . .	27 43
Fuller, Dana & Fitz . . .	26 78
The National Electric Protector Co., . . .	20 00
Vulcan Electric Co., . . .	16 80
Edison M'fg Co., . . .	13 77
Pettingill, Andrews Company : . . .	13 22
A. J. Wilkinson & Co., . . .	9 72
Eastern Electric Cable Company . . .	8 50
A. W. Mitchell M'fg Company . . .	5 00
Alfred Fitzpatrick . . .	3 10
A. W. Snow . . .	2 52
E. C. Dudley . . .	2 50
Henry W. Wellington . . .	2 45
Sundry Small bills . . .	6 34

\$4,091 18

Total, as per item No. 13 of expenses . . . \$41,472 81

Amount overdrawn, transferred into excess
and deficiency account, \$860 81

Funded Debt.

Schoolhouse note (Williams and Eliot). Paid to Winchester Savings Bank, note 4 per cent. due Jan. 25, as per item No. 14 of expenses	\$5,150 00
School note (addition to High School building). Paid to Estate of John Brewster, note 3 1-2 per cent. due Oct. 4, as per item No. 15 of expenses	4,500 00
Newton Free Library note (enlargement of library building). Paid to Five Cents Savings Bank, Salem, note 3 1-2 per cent., due Oct. 4, as per item No. 16 of expenses	4,600 00

Gymnasium Building.

SPECIAL APPROPRIATION.

Appropriation	\$10,500 00
Henry F. Ross, erection of building, as per contract	\$8,818 00
George G. Wilson, rolling partitions	553 49
Magee Furnace Co., furnace	545 00
Kendall & Stevens, architects	300 00
R. J. Morrissey, material and labor	272 00
B. & A. R. R. Co., freight	11 51

Total, as per item No. 17 of expenses 10,500 00

Curbing.

Appropriation		\$2,500 00
John A. Kenrick, treasurer, labor, men and teams, highway department	\$ 600 64	
Noah Prescott, curbstone	1,141 14	
Jere McCarty, curbstone	67 50	
Wight & Scorgie, curbstone	4 00	
Boston & Albany R. R. Co., freight	333 26	
		<hr/>
Total, as per item No. 18 of expenses		2,146 54
		<hr/>
Balance unexpended, transferred into excess and deficiency account		\$353 46

Drains and Culverts.

Appropriation		\$7,000 00
John A. Kenrick, treasurer, labor men and teams, Highway Department	\$4,856 89	

CEMENT.

Waldo Brothers	432 27
Smith & Green	108 00
A. H. Roffe	10 35
M. W. Sands, brick	139 32
Sewer Department, pipe	590 24

SEWER GRATES.

Concord Foundry Co.	298 80
H. W. Clapp & Co.	111 38
Boston & Albany R. R. Co., freight	125 68

<i>Amounts carried forward,</i>	<hr/> \$6,672 93	\$7,000 00
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<i>Amounts brought forward,</i>	\$6,672 93	\$7,000 00
N. Y. & N. E. R. R. Co., freight	45 90	
T. P. Emerson, use of barge .	7 00	
C. A. Harrington, lumber .	9 03	
Geo. L. Pearson, expressage .	2 95	

MATERIAL AND LABOR.

M. Frank Lucas . . .	32 66
Stephen Holmes . . .	18 74
Pettee Machine Works . .	5 25

SUPPLIES.

Perrin, Seaman & Co. . .	220 62
James Paxton . . .	4 70
Barber Brothers . . .	3 69
S. O. Thayer & Co. . .	1 73

Total, as per item No. 19 of expenses	7,025 20
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Amount overdrawn, transferred into excess and deficiency account	\$25 20
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Special Drains and Culverts.

Appropriation	\$20,000 00
John A. Kenrick, treasurer, amount paid for labor men and teams, as per pay rolls .	\$7,561 28

DRAIN PIPE.

Sewer Department . . .	2,647 73
W. F. Packer . . .	1,142 96
C. W. Boynton . . .	370 59
Waldo Brothers . . .	230 07
M. W. Sands, brick . . .	1,471 70

<i>Amounts carried forward,</i>	\$13,424 33	\$20,000 00
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Amounts brought forward, \$13,424 33 \$20,000 00

MANHOLE COVERS.

Concord Foundry Co. . .	205 00
Pettie Machine Works . .	181 76
Osgood & Hart . . .	34 75

CEMENT.

Smith & Green . . .	108 00
C. A. Harrington . . .	84 10
C. F. Eddy & Co. . . .	7 00
Jere Cotter, stonework . .	277 90
C. A. Harrington, lumber .	187 55
Thomas F. Mague, sand . .	31 50
Parker & Holmes, rubber boots	17 58
Newton Cemetery, wood . .	11 00
W. E. Hurd, wood	3 50
C. F. Eddy & Co., coal . . .	6 30
Newton Street Railway Co., tickets	20 00
James Cannon, car fares . .	5 78
M. Frank Lucas, stakes . .	16 68

FREIGHT.

N. Y. & N. E. R. R. Co. . .	352 98
B. & A. R. R. Co.	244 20
Fitchburg R. R. Co. . . .	41 08

EXPRESSAGE.

F. H. Hunting	28 00
Johnson & Keyes Express Co. .	19 00

BLACKSMITHING.

P. A. Murray	13 65
Andrew Peters	12 05
T. W. Mullen	11 16
A. Danforth, agent	9 00

Amounts carried forward, \$15,353 85 \$20,000 00

<i>Amounts brought forward,</i>	\$15,353 85	\$20,000 00
B. F. Barlow	6 34	
J. W. Dolund	4 30	
J. C. Farrar	2 90	
S. D. Keegan	1 20	

MATERIAL AND LABOR.

Henry F. Ross	46 54	
Stephen Holmes	11 64	
Water Department	10 95	
N. Y. & N. E. R. R. Co., labor	3 07	
Alfred Fitzpatrick	2 35	
J. Q. Harrington, filing saws .	1 25	

SUPPLIES.

B. Billings	3 48	
Barber Brothers	1 17	

Total, as per item No. 20 of expenses	\$15,449 04
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Balance unexpended, transferred into excess and deficiency account	\$4,550 96
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Highways, General Repairs.

Appropriation	\$75,000 00	
Additional appropriation by or- der of City Council	1,202 21	
	<hr/>	\$76,202 21
Charles W. Ross, superinten- dent of streets	2,500 00	

ASSITANT SUPERINTENDENTS.

George E. Stuart	1,311 94	
Charles A. Peck	951 00	
Charles L. Berry	936 00	

<i>Amounts carried forward,</i>	\$5,698 94	\$76,202 21
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<i>Amounts brought forward,</i>	\$5,698 94	\$76,202 21
Samuel M. Jackson . . .	65 00	
Thomas Stuart	9 00	
John A. Kenrick, treasurer, amount paid laborers on discharge tickets . . .	677 76	
John A. Kenrick, treasurer, amount paid laborers as per pay rolls	30,166 87	
Charles W. Ross, cash expenses.	15 41	
C. A. Peck, use of horse and carriage	200 00	

EXCHANGE OF HORSES, ETC.

E. Ham & Co.	590 00	
Valentine Stanley	450 00	
W. P. Stahl	250 00	
J. R. McLaughlin, care sick horses	134 00	
George A. Porter, horse den- tistry	20 00	

USE OF TEAMS, ETC.

Stephen F. Cate	23 75	
George W. Bush	20 00	
Bernard McFaden	16 80	
H. C. Daniels	10 00	
Central stables	6 00	
John Leahey	5 25	
John P. Keating	5 25	
Timothy Stuart & Son . . .	4 25	
John Joyce	3 75	
A. F. Harrington	2 00	
S. L. Pratt	2 00	

<i>Amounts carried forward,</i>	\$38,376 03	\$76,202 21
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<i>Amounts brought forward,</i>	\$38,376 03	\$76,202 21
Newton Cemetery, board of		
horses	213 50	
William Ussher, clipping horses	3 00	

EXPRESSAGE.

Charles H. Jenison	21 50	
F. H. Hunting	7 15	
Wilson's Express	6 75	
George L. Pearson	6 45	
Eames' Express	4 75	
Wm. H. Thompson	2 00	
N. Y. & N. E. R. R. Co.,		
freight	11 20	
B. & A. R. R. Co., freight . .	10 30	
Charles H. Hale, crushed stone	3,198 03	
Simpson Brothers, concreting .	2,658 00	

TOOLS, ETC.

Ames Plow Co.,	601 55	
Frye, Phipps & Co.,	235 09	
Wilson & Dwyer, repairs to		
Boylston street bridge . . .	225 00	
Logan & Sproul, sleds	210 00	
C. A. Harrington, lumber . . .	206 51	
Water department, use of water	191 31	
George H. Sampson, powder . .	57 07	
Boston Belting Co., rubber boots	50 08	
Fanning Printing Co., printing	45 00	
M. Frank Lucas, stakes	30 00	
Dr. F. M. O'Donnell, medical		
attendance	22 00	
Thomas F. Mague, sand	17 80	
John Atkinson, sand	2 40	

<i>Amounts carried forward,</i>	\$46,412 47	\$76,202 21
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<i>Amounts brought forward,</i>	\$46,412 47	\$76,202 21
A. H. Roffe, cement . . .	15 75	
A. G. Loker, broom stock . .	10 00	
J. N. Danforth, horse salve .	8 00	
Newton Journal, advertising .	8 00	
Thomas Bryson, manure . . .	6 75	
Sutherland's Liniment . . .	6 00	
Nonantum Worsted Co., waste .	2 00	

OIL.

Vacuum Oil Co.,	61 71	
Maverick Oil Co.,	40 84	
Alden Spears' Sons & Co., . .	33 97	
Butchers' Slaughtering and Melt- ing Association	9 20	

BROOMS.

Leander Barber, Jr.	15 00	
C. W. Bemis	4 00	
A. M. Loker	4 00	

OATMEAL.

Cobb, Aldrich & Co.,	18 35	
Cobb, Bates & Yerxa	4 25	

LABOR, MEN AND TEAMS.

Samuel M. Jackson	47 75	
George H. Hamill	13 87	

FILING SAWS.

J. Q. Harrington	7 50	
Wm. Johnson	1 00	
John Carroll, 2nd hand mowing machine	1 50	

<i>Amounts carried forward,</i>	\$46, 731 91	\$72,202 21
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Amounts brought forward, \$46,731 91 \$76,202 21

GRAIN.

George E. Johnson	627 58
B. Billings	591 11
H. W. Crowell	500 83
C. F. Eddy & Co. . . .	459 04
Albert Brackett & Son . .	455 90
N. W. Tupper	344 97

HAY.

C. F. Eddy & Co. . . .	1,268 97
N. W. Tupper	775 68
H. W. Crowell	771 35
George E. Johnson	429 37
Nathan Haynes	136 88
Albert Brackett & Son . .	20 34

STRAW.

N. W. Tupper	191 47
George E. Johnson	172 03
C. F. Eddy & Co. . . .	96 78
George H. Ellis	70 05
H. W. Crowell	40 54
Newton Cemetery	39 17
Dwight Chester	17 38

COAL.

C. F. Eddy & Co. . . .	199 50
Albert Brackett & Son . .	128 67
Estate of B. C. Baker . .	28 15
J. W. Hill	25 00
J. W. Mitchell	19 18

WOOD.

C. F. Eddy & Co. . . .	24 11
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Amounts carried forward, \$54,165 96 \$76,202 21

<i>Amounts brought forward,</i>	\$54,165 96	\$76,202 21
Albert Brackett & Son . . .	20 54	
J. W. Hill	18 25	
Estate of B. C. Baker . . .	5 00	
George Warren & Co. . . .	4 00	
Daniel Warren	1 00	

SALT.

C. L. Davenport	9 75	
C. F. Eddy & Co.	2 30	
Newton & Watertown Gas Light Co., gas	56 96	
Michael Darmody, car fares .	1 80	
Warren Soap Mfg. Co., soap .	1 27	

BLACKSMITHING.

J. C. Farrar	544 81	
P. A. Murray	335 92	
Charles A. Cole	233 42	
J. A. Nugent	213 86	
J. Pulcifer	202 23	
Delaney, Leland & Hewitt .	200 25	
Andrew Peters	193 37	
A. Danforth, agent	176 53	
John W. Scott	166 63	
B. F. Barlow	126 43	
Murray & Farrell	117 55	
P. A. McVicar	111 60	
Thomas Belger	90 24	
T. W. Mullen	89 72	
D. J. O'Donnell	60 26	
S. D. Keegan	12 20	
Jacob Foster	5 05	
Robert Dooley	3 00	

<i>Amounts carried forward,</i>	\$57,169 90	\$76,202 21
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Amounts brought forward, \$57,169 90 \$76,202 21

MATERIAL AND LABOR.

Water Department . . .	308 01
Alex. Griswold . . .	259 05
Parker & Field . . .	199 56
T. F. Glennan . . .	184 65
Newton Machine Co. . .	164 33
William Pettigrew . . .	141 52
J. O. Evans' Son . . .	140 55
M. S. Hodgson . . .	110 35
F. W. Stringe . . .	108 07
Bemis & Jewitt . . .	88 99
Stephen Holmes . . .	62 95
Henry F. Ross . . .	47 77
Wm. F. Lill . . .	38 00
V. Haffermehl . . .	37 75
Charles J. Polley . . .	23 35
Hall & Washburn . . .	22 50
Garey & English . . .	21 85
J. L. Sears . . .	21 11
P. Y. Hoseason . . .	21 00
George Spring . . .	16 97
George N. Smith . . .	16 28
Willard Rand . . .	15 00
Edward Kendall & Sons . .	15 00
George A. Mills . . .	13 70
J. H. Houghton . . .	13 05
Allen & Barry . . .	8 30
Hiram Ross . . .	8 25
L. H. Cranitch . . .	7 20
Jerry Burke . . .	6 33
John M. Norton . . .	6 00
George S. Noden . . .	4 15
Charles H. Spring . . .	3 25

Amounts carried forward, \$59,304 74 \$76,202 21

<i>Amounts brought forward</i>	\$59,304 74	\$76,202 21
H. W. Pierce	2 73	
Higgins & Nickerson . .	2 56	
J. F. Horrigan	2 00	
E. W. Hodgson, Jr. . . .	1 50	

SUPPLIES.

H. M. Darling & Co., . .	176 13
Dodge, Haley & Co., . .	126 02
Willard Rand	79 80
Joseph Breck & Sons . .	71 20
Lidgerwood M'fg Co., . .	48 00
Barber Brothers	45 98
W. O. Knapp & Co., . . .	28 98
Ordway, Kimball & Loring .	28 88
A. K. Richmond & Son . .	25 32
Dexter Brothers	22 13
J. H. Houghton	21 25
S. O. Thayer & Co., . . .	19 78
G. P. Atkins	18 66
P. Y. Hoseason	16 25
S. M. Spencer	11 25
Cousens & Pratt	10 50
B. F. Houghton	8 96
O. F. Lucas	8 61
Perrin, Seamens & Co., . .	7 05
James Hennessey	7 00
Morss & Whyte	7 00
Holden & Herrick	6 88
Wm. Henry Brackett . . .	6 76
Isaac H. Snow	6 08
Roberts Iron Works Co., . .	6 00
Walworth M'fg Co., . . .	5 43
Boston Belting Co., . . .	5 37

<i>Amounts carried forward</i>	\$60,138 80	\$76,202 21
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<i>Amounts brought forward,</i>	\$60,138 80	\$76,202 21
Hubbard & Procter	5 15	
A. A. Savage	4 41	
J. H. Hoyt	4 00	
John J. Noble	3 63	
Pettee Machine Works . . .	2 80	
Newton & Watertown Gas Light Company	2 80	
Hill & Langtry	2 50	
John F. Payne	2 20	
Edson M'fg Co.,	2 20	
D. H. Fitch	2 00	
A. R. Gardner	1 85	
H. A. Sherman	1 85	
I. R. Stevens	1 80	
C. H. Campbell	1 74	
H. E. Woodberry	1 50	
Mrs. A. Williams	1 25	
Sundry small bills	11 76	

AMOUNT EXPENDED ON ACCOUNT OF CHARLES H. HALE,
CONTRACT FOR CRUSHED STONE.

John A. Kenrick, treasurer,
amount paid laborers, as per
pay rolls \$3,061 63

POWDER.

George H. Sampson	153 34
A. J. Wellington	69 00

COAL.

C. F. Eddy & Co.,	261 52
Estate of B. C. Baker	25 17
C. W. Ross, cash expenses . .	1 00

OIL.

Vacuum Oil Co., oil	7 65
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<i>Amounts carried forward</i>	\$63,771 55	\$76,202 21
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Amounts brought forward, \$63,771 55 \$76,202 21

EXPRESSAGE.

F. M. Hunting . . .	1 15
Wilson's Express . . .	75
B. & A. R. R. Co., freight .	6 33

MATERIAL AND LABOR.

J. H. Houghton . . .	210 98
Newton Machine Co., . . .	5 50
Charles A. Cole . . .	4 50
Walworth M'fg Co., . . .	4 49
Adam Beck . . .	4 38
L. H. Cranitch . . .	1 80
Wm. Pettigrew . . .	1 50

SUPPLIES.

Lidgerwood M'fg Co., . . .	48 40
Thomas B. Adams . . .	3 20
H. W. Pierce . . .	1 45
S. O. Thayer & Co. . . .	72

Total, as per item No. 21 of expenses \$64,066 70

Balance unexpended, transferred into excess
cess and deficiency account . . . \$12,135 51

Gravel Land.

Appropriation . . . \$1,000 00

GRAVEL.

Newton Cemetery Corporation .	129 75
J. E. Fiske . . .	41 70
Boston & Albany R. R. Co., .	39 30
Amos L. Hale . . .	25 40
Moses G. Crane . . .	20 95
Page & Henshaw . . .	16 60
H. B. Parker . . .	11 65

Amounts carried forward, \$285 35 \$1,000 00

<i>Amounts brought forward,</i>	\$285 35	\$1,000 00
John Ward	6 75	
George Hammill	6 00	
Mrs. Mary C. Morrill	3 70	

SAND.

Henry F. Ross	60 08	
Thomas F. Mague	57 60	
J. M. Keating	7 05	
C. R. Noyes, rent of land	36 00	
C. S. Packard, moving house, Pine street	40 00	
Water department, use of water	5 38	

MATERIAL AND LABOR.

Patrick Fitzpatrick	180 00	
Henry H. Hunt	36 26	
Water Department	3 86	
Miss Sarah L. Patrick, writing specification	3 00	

Total, as per item No. 22 of expenses	\$731 03
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Balance unexpended, transferred into excess and deficiency account	\$268 97
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Land Damages.

Appropriation	\$500 00
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SETTLEMENT OF CLAIMS.

John Joyce	\$125 00	
A. B. Potter	100 00	
Catherine W. Edes	25 00	

Total, as per item No. 23 of expenses	\$250 00
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Balance unexpended, transferred into excess and deficiency account	\$250 00
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Sidewalks and Street Crossings.

Appropriation		\$18,000 00
John A. Kenrick, treasurer,		
labor men and teams, High-		
way Department	8,382 62	
Simpson Brothers, concreting . .	8664 04	
C. A. Harrington, lumber	182 52	
H. B. Parker, sods	62 74	
A. S. Glover, plank sidewalk . . .	25 00	
H. B. Parker, gravel	5 84	

BLACKSMITHING.

John W. Scott	21 98
P. A. Murray	50

MATERIAL AND LABOR.

C. H. & A. F. Ireland	46 82
William Pettigrew	32 31
Garey & English	12 96
Stephen Holmes	9 55
W. F. Johnson	9 07
H. F. Ross	3 25

Total, as per item No. 24 of expenses	\$17,459 20
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Balance unexpended, transferred into excess and deficiency account	\$540 80
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Widening, Reconstructing and Improvement.

Appropriation	25,000 00
John A. Kenrick, treasurer,	
amount paid for labor men	
and teams, as per pay rolls	17,218 69
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<i>Amounts carried forward,</i>	\$17,218 69 \$25,000 00

<i>Amounts brought forward.</i>	\$17,218 69	\$25,000 00
Highway Department, crushed stone	4,612 70	
George H. Sampson, powder .	54 25	
Johnson & Keyes, use of barge	48 00	
C. H. Jenison, expressage .	17 00	
F. H. Hunting, expressage .	6 00	
H. F. Ross, stakes . . .	2 50	

COAL AND WOOD.

C. F. Eddy & Co. . . .	58 31	
Albert Brackett & Son . .	15 12	
Estate of B. C. Baker . .	5 75	

MATERIAL AND LABOR.

William Pettigrew . . .	58 91	
Stephen Holmes . . .	7 17	

BLACKSMITHING.

T. W. Mullen	67 21	
J. C. Farrar	52 04	
P. A. Murray	22 00	
John W. Scott	16 68	
Thomas Belger	13 05	
Charles A. Cole	5 75	

SUPPLIES.

Barber Brothers	3 55	
Ames Plow Co.	3 46	

Total, as per item No. 25 of expenses	\$22,288 14	
Balance unexpended, transferred into excess and deficiency account	\$2,711 86	

Interest on City Loans — Permanent.

Appropriation	\$15,200 00	
National Revere Bank . .	\$4,460 00	
<i>Amounts carried forward,</i>	\$4,460 00	\$15,200 00

<i>Amounts brought forward,</i>	\$4,460 00	\$15,200 00
Commonwealth of Mass. .	4,620 00	
George F. Blake	3,504 00	
Estate of John Brewster .	945 00	
Cape Ann Savings Bank . .	412 00	
Sinking Fund Commissioners, City of Newton	406 00	
Newton Savings Bank . . .	400 00	
Salem Five Cents Savings Bank	161 00	
Winchester Savings Bank .	103 00	

Total, as per item No. 26 of expenses		\$15,011 00
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Balance unexpended, transferred into excess and deficiency account		\$189 00
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Interest on City Loans — Temporary.

Appropriation		\$10,000 00
Trustees of the Read Fund .	1,800 00	
New England Mutual Life In- surance Company	1,687 50	
Merchants National Bank .	1,538 75	
New England Trust Co. . .	1,305 56	
Stedman, Steere & Wheeler .	654 06	
Edgerley & Co.	429 67	
John A. Kenrick, treasurer, on account of uninvested por- tion of Kenrick Fund . . .	233 75	
Suffolk Savings Bank . . .	208 33	
Commonwealth of Mass. . .	187 50	
W. F. Lawrence, Trustee . .	141 67	

Total, as per item No. 27 of expenses		\$8,186 79
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Balance unexpended, transferred into excess and deficiency account		\$1,813 21
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Interest on Water Bonds.

Appropriation	\$72,500 00	
Transferred from city treasury ac- crued interest on water bonds sold, by order of City Council	1,660 59	
		<hr/>
		\$74,160 59
January 1, 1891, National Revere Bank	\$24,250 00	
March 17, National Revere Bank	11,000 00	
July 1, National Revere Bank .	24,250 00	
October 1, National Revere Bank	14,000 00	
		<hr/>
Total, as per item No. 28 of expenses		\$73,500 00
		<hr/>
Balance unexpended, transferred into excess and deficiency account .		\$660 59

Interest on Sewer Bonds.

Appropriation	2,000 00
October 1, 1891, National Revere Bank, as per item No. 29 of expenses	\$2,000 00

Indigent Soldiers and Sailors.

Appropriation	\$1000 00
John Sexton	\$120 00
Samuel G. Toothachre	120 00
Jefferson Thomas	120 00
Matthew Duncan	96 00
Samuel Franklin	96 00
James H. Lockley	80 00
Albert P. Bugbee	72 00
	<hr/>
<i>Amounts carried forward,</i>	\$704 00
	<hr/>
	\$1,000 00

<i>Amounts brought forward,</i>	\$704 00	\$1,000 00
John F. Franklin	48 00	
John Taffe	6 00	
A. J. Fiske, rent of house to John Taffe family	63 00	
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Total, as per item No. 30 of expenses		\$821 00
Balance unexpended, transferred into excess and deficiency account		\$179 00

Memorial Day.

Appropriation	\$500 00
Charles Ward Post, No. 62, G. A. R., as per item No. 32 of expenses	\$500 00

Miscellaneous Expenses.

Appropriation	\$6,000 00
Additional appropriation by or- der of City Council	1,650 00
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	\$7,650 00
Transferred to appropriation for City Engineer's department	1,000 00
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	\$6,650 00
Martin C. Laffie, serving war- rants	\$741 65
Rodney M. Lucas, serving war- rants	103 25

SETTLEMENT OF CLAIMS.

Maggie McPhee	175 00	
Margaret A. Parsons	100 00	
Bridget Thornton	100 00	
Lizzie A. Stinson	100 00	
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<i>Amounts carried forward,</i>	\$1,319 90	\$6,650 00

<i>Amounts brought forward,</i>	\$1,319 90	\$6,650 00
Charles C. Harrington . . .	100 00	
Louis Brumel	50 00	
New England Telegraph and Telephone Co., rent of in- struments, etc.	555 52	
John A. Kenrick, treasurer, amount paid for trimming trees, as per pay rolls . .	624 15	
American Bank note Co., en- graving plate for sewer bonds	510 00	
Newton Athenaeum, aid for read- ing room	500 00	
Newton Centre Associates, aid for reading room	250 00	
Kendall & Stevens, plans for Almshouse buildings . .	300 00	
Kendall & Stevens, service on drill shed	250 00	
George E. Bridges, collecting facts of births	279 00	
* Cabot Brothers, furniture . .	207 15	
S. B. Holman & Co., furniture .	20 00	
Winfield S. Slocum, City Solici- tor, legal expenses	200 00	
Henry A. Piper, auditing City Treasurer's books	200 00	
F. L. Olmsted, plans for division of Almshouse farm	160 00	
Watering streets in front of public property	119 76	
Boston Safe Deposit & Trust Co., rent of boxes	80 00	
<i>Amounts carried forward,</i>	<hr/> \$5,725 48	<hr/> \$6,650 00

<i>Amounts brought forward,</i>	\$5,725 48	\$6,650 00
Newton Post Office, rent of box	2 00	
C. H. Stacy, rent of box	2 00	
E. W. Harmden, stenographer .	65 75	
J. C. Brimblecom, making collector's list	50 00	
Commonwealth of Massachusetts, one quarter fees of druggists' licenses,	10 25	
Fanning Printing Co., printing	5 75	

CLERICAL SERVICES, TREASURER'S DEPARTMENT.

C. Bowditch Coffin	250 00
Caroline M. Jordan	60 00
Nellie M. Heywood	28 00
John C. Brimblecom	25 00
Carrie Blodgett	21 00
Lizzie G. Tompson	18 00
Moses Clark, Jr.	15 00
Mabel F. Kenrick	10 00

INCIDENTAL EXPENSES.

John A. Kenrick, treasurer's office	37 05
Isaac F. Kingsbury, City Clerk's office	36 79
Benjamin F. Otis, auditor's office	28 59
Joseph D. Wellington, City Messenger's department .	15 70

USE OF TEAMS.

Stephen F. Cate	364 50
Fred. B. Spear	121 00
Henry C. Daniels	16 25

<i>Amounts carried forward,</i>	\$6,908 11	\$6,650 00
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<i>Amounts brought forward,</i>	\$6,908 11	\$6,650 00
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ADVERTISING.

Drew, Allis & Co.	100 00
The Globe Newspaper Co.	75 63
The Boston Herald Co.	68 75
Engineering News & Pub. Co.	66 40
The Engineering Record	60 40
Newton Journal	58 30
Boston Daily Advertiser	35 01
The Newton Graphic	33 63
Journal Newspaper Co.	28 75
The Post Publishing Co.	28 40

MATERIAL AND LABOR.

Henry H. Hunt	101 46
Charles A. Hill	43 10
Joseph Zeller	28 60

SUPPLIES.

Joseph Lee	45 00
John Irving	29 25
Wilson & Marshall	22 50
J. D. Wellington	8 49
Mrs. A. D. Wood	7 00
Barber Brothers	2 28

RINGING BELLS.

Charles W. Florence	6 00
J. T. Thomason	6 00
James Moore	6 00
A. C. Marston	6 00
A. S. Connolly	6 00
C. A. Peek	6 00
J. C. Newcomb	3 00
A. H. Sisson	3 00

<i>Amounts carried forward,</i>	\$7,793 06	\$6,650 00
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<i>Amounts brought forward,</i>	\$7,793 06	\$6,650 00
J. W. Page	3 00	
W. B. McMullin	3 00	
George E. Newton	3 00	
Sundry small bills	4 05	

Total, as per item No. 33 of expenses		\$7,806 11
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Amount overdrawn, transferred into excess and deficiency account		\$1,156 11
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Newton Free Library.

Appropriation	\$11,280 00	
Additional appropriation by or- der of City Council	2,700 00	
		\$13,980 00
Elizabeth P. Thurston, librarian	1,000 00	

ASSISTANT LIBRARIANS.

M. E. Chase	366 67
Louise Stuart	183 33
Louise J. Smallwood	500 00
Etta P. Cleaveland	500 00
C. A. Flanders	500 00
K. K. Wood	500 00
Henry J. Marshman, janitor	800 00

BOOKS.

Little Brown & Co. . . .	843 68
W. B. Clark & Co	787 31
The Boston Book Co. . . .	332 50
N. J. Bartlett	283 99
D. C. Heath & Co. . . .	26 92
D. Appleton & Co. . . .	12 00

<i>Amounts carried forward,</i>	\$6,636 40	\$13,980 00
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<i>Amounts brought forward,</i>	\$6,636 40	\$13,980 00
Joseph George Cupples . . .	8 00	
The History Co.	5 50	
Balch Brothers	4 50	
A. S. Hudson	4 00	
American Statistical Asso. .	4 00	
J. H. H. McNamee, binding books	306 25	

SUBSCRIPTIONS.

John Cutler	147 00
Henry D. Noyes & Co. . . .	170 75
Ticknor & Co.	25 00
Globe Printing Co.	12 00
Nicholson & Co.	12 00
Journal Newspaper Co. . . .	12 00
The Boston Herald Co. . . .	12 00
F. B. Sanborn	10 00
News & Courier Co.	10 00
The Evening Post	9 00
The Tribune Association . .	8 00
The Boston Daily Advertiser .	7 50
The Republican Co.	7 00
The Post Publishing Co. . . .	6 00
The World	6 00
The Globe Newspaper Co. . .	6 00
Gazette Printing Co.	6 00
Constitution Publishing Co. .	6 00
J. H. Heickcox	5 00
Garden & Forest Publishing Co.	4 00
H. G. Parker	3 20
George H. Pratt	2 50
The Newton Graphic	2 00

<i>Amounts carried forward,</i>	\$7,457 60	\$13,980 00
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<i>Amounts brought forward,</i>	\$7,457 60	\$13,980 00
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EXPRESSAGE OF BOOKS.

Henry C. Daniels . . .	\$1,350 00
L. N. Burbank . . .	41 00

SERVICES AT AGENCY.

Newton Centre Associates .	75 00
W. C. Gaudalet . . .	50 00
Everett E. Moody . . .	41 25
Alfred Brush . . .	40 00
Bernard Billings . . .	40 00
Phillip S. Brickett . . .	40 00
C. W. Kinder . . .	20 00
Newton Journal (catalogues) .	2,255 96

PRINTING.

The Newton Graphic . .	62 40
Newton Journal . . .	30 00
Newton & Watertown Gas L't Co., incandescent lighting	331 37
Gas	317 84
Water Department, use of water	12 62
C. F. Eddy & Co., coal . .	180 06
Albert Brackett & Son, coal .	86 53
Miner Robinson, contract for electric wiring and fixtures	756 23
Newton & Watertown Gas L't Co., connections for electric lighting	8 50

MATERIAL AND LABOR.

Miner Robinson . . .	97 00
H. H. Hunt . . .	74 40
E. A. Smallwood . . .	20 64

SUPPLIES.

Library Bureau . . .	83 69
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<i>Amounts carried forward,</i>	<u>\$13,472 09</u>	<u>\$13,980 00</u>
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<i>Amounts brought forward,</i>	\$13,472 09	\$13,980 00
Boston School Supply Co.	18 43	
J. Q. Bradish & Co.	13 15	
E. F. Smallwood	12 50	
Mitchell Wing	12 00	
Oscar F. Howe	7 63	

Total, as per item No. 34 of expenses \$13,535 80

Balance unexpended, transferred into excess and
deficiency account \$444 20

Newton Cottage Hospital.

Appropriation	\$1,500 00
Paid George S. Bullens, treasurer, as per item No. 35 of expenses	1,500 00

Newton Highlands Engine House—Special.

Balance of appropriation	\$6,050 00
H. H. Hunt, balance of contract on completion of building	\$4,880 00
H. H. Kendall, architect	233 10
Charles A. Hill, material and labor	115 00
G. W. Ulmer, wiring building	17 00

Total, as per item No. 36 of expenses 5,245 10

Balance carried forward \$804 90

Parks and Squares.

Appropriation	\$2,000 00
Additional appropriation by or- der of City Council	600 00
	<hr/>
	\$2,600 00
<i>Amount carried forward,</i>	<hr/> \$2,600 00

Amount brought forward, \$2,600 00

CARE OF PARKS.

Arthur Muldoon, Newton Centre	\$398 50
Myles J. Joyce, Farlow . . .	475 98
John Farrell, Newtonville . .	76 00
Daniel Dailey, Lincoln . . .	68 00
George M. Fiske, Walcott . .	49 05
L. P. Ryder, Linwood . . .	20 00
John Stearns, Clark and Centre streets	10 00
John Joyce, Tile drainage sys- tem at Newton Centre play grounds, as per contract .	332 38
Arthur Muldoon, material and labor at Newton Centre play grounds, as per contract .	255 00
Newton Highlands Improvement Asso., trees, and labor plant- ing same	55 00
Also material and labor on foun- dation for fountain . . .	75 00
W. B. McMullin, roofing fount- ain	45 00
Waban Improvement Society, trees, and labor planting same	50 00
L. P. Ryder, manure, and labor spreading same . . .	50 00
Newton Cemetery, trees . . .	33 00
J. J. Johnson, plants for Farlow Park	25 00
Barber Brothers, settees for Far- low Park	20 00

<i>Amounts carried forward,</i>	\$2,037 91	\$2,600 00
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<i>Amounts brought forward,</i>	\$2,037 91	\$2,600 00
Myles J. Joyce, gravel . . .	5 00	
John Hanney, cleaning Fowles Park	6 00	
Stephen Holmes, material and labor	22 05	
J. R. Stevens, supplies . . .	80	
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Total, as per item No. 37 of expenses		\$2,071 76
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Balance unexpended, transferred into excess and deficiency account . . .		\$528 24

Police Department.

Appropriation	\$37,025 00
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REGULAR POLICE OFFICERS.

Charles F. Richardson, City Marshall	\$1,700 00
Charles E. Davis, captain . .	1,300 00
Charles P. Heustis, sergeant .	1,200 00
John Ryan, sergeant	636 94
James D. Henthorne, inspector	1,200 00

PATROLMEN.

Charles T. Bartlett	1,000 00
Noah F. Bosworth	1,000 00
Wm. G. Bosworth	1,000 00
Bernard F. Burke	1,000 00
John W. Conroy	1,000 00
Richard B. Conroy	1,000 00
Frank B. Fletcher	1,000 00
Ambrose M. Fuller	1,000 00
Robert S. Harrison	1,000 00
Edson C. Holmes	1,000 00

<i>Amounts carried forward</i>	\$16,036 94	\$37,025 00
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<i>Amounts brought forward,</i>	\$16,036 94	\$ 37,025 00
Wm. A. Leonard . . .	1,000 00	
Rufus H. Moulton . . .	1,000 00	
John Purcill	1,000 00	
John W. Quilty	1,000 00	
Wm. P. Soule	1,000 00	
Thomas C. Clay	988 00	
John J. Davis	972 56	
Frederick M. Mitchell . . .	972 56	
Guy S. Shannon	972 56	
Joshua H. Seaver	972 56	
Richard T. Taffe	972 56	
John E. Dugan	959 26	
Robert W. Blue	926 96	
Martin J. Nagle	908 86	
William O. Harlow	869 36	
Charles O. Davis	796 08	
A. F. A. G. Libby	762 50	
John Ryan	469 02	

SPECIAL POLICE OFFICERS.

Charles R. Young	288 00	
Charles Tapply	211 20	
Hiram R. Hartford	79 20	
Daniel J. Corcoran	62 40	
Martin C. Laffie	7 20	
Frank A. Barrows	4 80	
E. W. Hodgson	4 80	
Jeremiah E. McMahon . . .	4 80	
Reuben Chaplin	4 80	
Frank Whidden	4 80	
Frederick A. Williams . . .	4 80	
Thomas Dolan, care of teams and stable	387 15	

<i>Amounts carried forward,</i>	\$33,643 73	\$37,025 00
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<i>Amounts brought forward,</i>	\$33,643 73	\$37,025 00
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INCIDENTAL EXPENSES.

W. W. White, exchange of horse	250 00
Stephen F. Cate, board of horse	83 57

USE OF TEAMS.

John Purcill	46 67
Stephen F. Cate	30 25
Robert Weir	22 50
H. A. Spear	13 50
S. L. Pratt	9 00
Henry C. Daniels	9 00
Charles G. Tinkham	8 50
Fitzgerald Brothers	6 50
N. F. Bosworth	4 75
Central Stables	4 50
R. H. Turner	2 00

CONVEYANCE OF PRISONERS.

John Ryan	47 79
James D. Henthorn	45 08
Frank B. Fletcher	9 36
John W. Conroy	2 43
W. G. Bosworth	1 95
John J. Davis	1 82
George W. Dearborn, meals for prisoners	189 10
New England Telegraph & Tele- phone Co., rent of instru- ments for patrol service	315 00
C. F. Eddy & Co., coal	173 00
Newton & Watertown Gas Light Co., gas	155 12

<i>Amounts carried forward,</i>	\$35,075 12	\$37,025 00
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<i>Amounts brought forward,</i>	\$35,075 12	\$37,025 00
Water Department, use of water	68 38	
C. F. Eddy & Co., grain . . .	141 91	
“ “ “ hay . . .	88 52	
“ “ “ straw . . .	50 67	
Charles F. Richardson, lockup keeper	100 00	
Charles F. Richardson, probation officer	25 00	
Dr. Fred. E. Crockett, use of stable for patrol horses .	62 00	
C. Seaver, Jr., photographs .	21 50	
E. C. Holmes, laundry work .	18 85	
W. Usher, clipping horses .	9 00	
J. R. McLaughlin, care sick horses	9 00	
C. E. Hastings, repairing clocks	3 25	
Charles H. Stacy, telegrams .	3 06	
C. G. Estes, brooms	6 00	
Robert King, damage to boat .	8 15	
Standard Furniture Co., rugs .	28 25	
Charles A. Foley, moving boat .	5 00	

EXPRESSAGE.

C. H. Jenison	8 40
C. D. Baker	4 50
J. S. Roberts	1 50

SUNDRY CASH EXPENSES.

James D. Henthorn . . .	113 72
Charles F. Richardson . .	83 84
Frank B. Fletcher . . .	5 50
W. B. Randlett	3 65
Charles R. Young	2 26

<i>Amounts carried forward,</i>	\$35,947 03	\$37,025 00
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Amounts brought forward, \$35,947 03 \$37,025 00

MEDICAL ATTENDANCE.

Dr. Fred. E. Crockett . . .	18 00
Dr. James H. Bodge . . .	8 00
Dr. Francis Geo. Curtis . . .	2 00

BLACKSMITHING.

P. A. McVicar . . .	156 60
J. A. Nugent . . .	55 32
S. D. Keegan . . .	16 40
P. A. Murray . . .	10 00
Charles A. Cole . . .	7 75
J. C. Farrar . . .	1 50

MATERIAL AND LABOR.

Alex. Griswold . . .	109 35
O. F. Lucas . . .	93 75
Henry H. Hunt . . .	27 49
Wm. H. French & Co. . .	20 50
Ward & Co. . .	16 00
John W. Conroy & Son . .	15 00
Charles E. Berry . . .	10 00
A. W. Snow . . .	2 85
S. B. Maxwell, labor . .	66 98
Thomas Dolan, labor . .	5 00
J. Wiley Edmands, lineman .	9 00

SUPPLIES.

N. E. Gamewell Co. . .	134 29
Samuel O. Aborn . . .	42 75
Eastern Electric Cable Co. .	40 05
Pettingell, Andrews Co. . .	35 30
F. E. Judkins . . .	25 85
J. B. Prescott & Sons . .	24 20
Albert F. Wright . . .	22 19

<i>Amounts carried forward,</i>	\$36,923 15	\$37,025 00
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<i>Amounts brought forward,</i>	\$36,923 15	\$37,025 00
D. F. Healey	6 00	
The Electric Gas Lighting Co. .	20 76	
Aaron R. Gay & Co.	8 30	
E. C. Holmes	7 45	
Berry Mfg. Co.	6 00	
Wm. B. Collagan	5 62	
C. A. Twitchell & Co.	5 10	
James H. Nickerson	4 50	
H. A. Winship	4 25	
H. C. Dimond & Co.	4 05	
Pettee Machine Works	4 00	
Fred. L. Cook	3 93	
F. H. Humphrey, agt.	3 90	
Henry W. Wellington	2 77	
Barber Brothers	2 42	
Walworth Construction and sup- ply Co.	1 96	
I. R. Stevens	1 64	
Sundry small bills	10 88	

Total, as per item No. 38 of expenses	\$37,026 68
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Amount overdrawn, transferred into excess and deficiency account	\$1 68
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Police Patrol Stable—Special Appropriation.

Appropriation	\$7,000 00
William Pettigrew, erection of building, as per contract . .	\$6,145 32
Walworth Construction & Sup- ply Co., heating apparatus	510 90
Kendall & Stevens, architects	150 00
<i>Amounts carried forward,</i>	\$6,806 22
	\$7,000 00

<i>Amounts brought forward,</i>	\$6,806 22	\$7,000 00
Wm. H. French & Co., material and labor	78 35	
G. W. Ulmer, wiring stable .	18 00	
	<hr/>	
Total, as per item No. 39 of expenses		\$6,902 57
		<hr/>
Balance carried forward . . .		\$97 43

Poor out of Almshouse.

Appropriation	\$9,000 00	
Transferred from appropriation for Almshouse Expenses .	700 00	
	<hr/>	
		\$9,700 00
Nathan Mosman, City Almoner and clerk of Board of Over- seers	\$1,000 00	

OVERSEERS.

W. M. Russell, Ward 1 . . .	50 00	
John F. Payne, Ward 2 . . .	50 00	
Andrew J. Fiske, Ward 3 . . .	50 00	
Nathan Mosman, Ward 4 . . .	50 00	
Eugene Fanning, Ward 5 . . .	50 00	
George Warren, Ward 6 . . .	50 00	
Henry C. Daniels, Ward 7 . . .	50 00	
Nathan Mosman, paid to sundry persons	354 96	

CARE OF SUNDRY PERSONS.

Newton Cottage Hospital . . .	819 53	
Worcester Insane Asylum . . .	812 98	
Worcester Lunatic Hospital . . .	740 88	
Westborough Insane Hospital . . .	585 95	
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<i>Amounts carried forward,</i>	\$4,664 30	\$9,700 00

<i>Amounts brought forward,</i>	\$4,664 30	\$9,700 00
Commonwealth of Mass., .	375 42	
Massachusetts School for the		
Feeble Minded, care Grace		
Eaton	7 75	

PARTIAL SUPPORT OF POOR.

City of Boston	233 76
City of Lawrence	132 03
City of Chicopee	75 00
City of Waltham	51 05
City of Lowell	36 62
City of Cambridge	22 78
City of Malden	18 46
Town of Hingham	348 39
Town of Sudbury	52 00
Town of Framingham	30 70
Town of Norwood	6 00
John M. Fisk, Master, aid . .	37 00

MEDICAL ATTENDANCE.

Dr. H. B Stoddard	113 50
Dr. Edward P. Scales	45 00
Dr. Eben Thompson	57 00
Dr. Thomas F. Carroll	31 00
Dr. D. Waldo Stearns	22 00
Dr. James Utley	8 00
Dr. W. H. Hildreth	5 00
Dr. Robert P. Loring	5 00
Dr. G. H. Talbot	5 00
Dr. Albert Nott	4 00
Dr. Fred L. Thayer	3 00
Dr. Fred E. Crockett	1 00

PRESCRIPTIONS.

John F. Payne	48 20
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<i>Amounts carried forward,</i>	\$6,438 96	\$9,700 00
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<i>Amounts brought forward,</i>	\$6,438 96	\$9,700 00
Sawyer & Co.	26 50	
Mrs. A. Williams	22 00	
Arthur Hudson	12 85	
W. M. Russell	10 88	
Bernard Billings & Co.	7 35	
Hubbard & Proctor	4 20	
George H. Ingraham	3 50	
W. C. Gaudalet	2 82	
C. W. Kinder	50	

FUNERAL EXPENSES.

Fitzgerald Brothers	70 00
James McGourty	55 00
Stephen F. Cate	35 00
J. Tinkham	15 00
George H. Gregg	5 00
John Flood	14 00
Newton Cemetery, interments	59 00

USE OF TEAMS.

Stephen F. Cate	2 50
Henry C. Daniels	1 50
Mrs. Ephriam Wilson, board of Azalia C. Teulon	169 46
Roxbury Home, etc., board of Miss Crawley	72 00
John R. Farnum, rent of house, Mrs. Pitts	120 00
Miss Alice Williston, board of Alice Sullivan	58 60
Fanning Printing Co., postal cards	2 00
Catherine Collins, nurse	35 00
Ellen Mead, nurse	3 00

<i>Amounts carried forward,</i>	\$7,246 62	\$9,700 00
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<i>Amounts brought forward,</i>	\$7,246 62	\$9,700 00
W. J. Burnett, milk	12 39	
A. J. Fiske & Co., sundry cash		
expenses	2 50	
J. D. Henthorn, cash expenses.	2 98	

SHOES.

C. C. Clapp	25 70
G. A. Tuttle.	7 70
John V. Sullivan	6 75
John Porter	5 00
Everett E. Moody	3 25
J. T. Thomason	1 50
Daniel Archibald	50

PROVISIONS.

E. Vickers	88 66
John Beal	38 62
D. H. Fitch	18 00
H. P. Dearborn	3 98
Hagerty Brothers	2 00
F. M. Dutch	1 00

GROCERIES.

C. Strout & Sons	\$224 40
A. A. Savage	178 00
J. B. Murphy	125 29
Cooper & Dyson	112 34
W. B. Whittier	104 00
A. R. Pitts	102 20
Fred L. Cook	99 07
G. P. Atkins	94 00
Frank A. Childs	90 10
W. O. Knapp & Co.	85 25
B. F. Houghton	83 50

<i>Amounts carried forward,</i>	\$8,765 30	\$9,700 00
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<i>Amounts brought forward,</i>	\$8,765 30	\$9,700 00
M. Mahoney	64 00	
I. R. Stevens	60 64	
G. H. Baker & Co. . . .	41 00	
H. A. Sherman	43 35	
H. E. Woodberry	33 00	
Howard B. Coffin	29 50	
Alonzo Whitney	18 00	
Daniel Warren	17 25	
Boston Branch Grocery	12 00	
B. Billings	10 00	
Dennis O'Brien	6 00	

FUEL.

Albert Brackett & Son	253 86
C. F. Eddy & Co.	178 50
J. W. Hill	123 50
J. W. Mitchell	88 88
Newton Coal Co.	70 90
B. C. Baker	49 51
Estate of B. C. Baker	20 48
Alms-house Department	9 00

Total, as per item No. 40 of expenses	\$9,894 67
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Amount overdrawn, transferred into excess and deficiency account	\$194 67
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Public Property.

Appropriation	\$10,000 00
Additional appropriation by or- der of City Council	12,000 00
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	\$22,000 00
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<i>Amount carried forward,</i>	\$22,000 00

<i>Amount brought forward,</i>		\$22,000 00
D. P. Gosline, ventilation of Underwood, school as per contract	\$2,500 00	
F. W. Stevens, alterations at City Hall, as per contract .	2,140 86	
John P. Keating, grading, etc., at Engine House, Newton Highlands, as per contract	1,099 38	
Mosler Safe Co., safe	304 16	
Simpson Brothers, concreting .	246 69	
Water Department, sewer con- nections	207 36	
Chelmsford Foundry Co., fire- escape at City Hall	181 60	
Kendall & Stevens, services and plans	181 12	
John A. Robertson, tables .	175 00	
Newton & Watertown Gas Light Co., gas	147 26	
A. McFaden, grading old Claffin school grounds	125 00	
J. L. Randall, care Prospect Hall, etc.	110 60	
Thomas O'Callaghan, carpets, etc.	101 73	
Seth W. Fuller, electric bells .	68 00	
American Steam Boiler Insur- ance Co., insurance of boilers	62 50	
Bryant & Barbey, bedsteads .	60 00	
Broad Gauge Iron Works, stall floors	57 00	
<i>Amounts carried forward,</i>	<hr/> \$7,768 26	<hr/> \$22,000 00

<i>Amounts brought forward,</i>	\$7,768 26	\$22,000 00
Philip H. Butler & Co., slate partitions	54 12	
Newton Odorless Excavating Co., cleaning cesspool .	53 75	
G. W. Ulmer, speaking tubes at City Hall	42 00	
Buttrick Lumber Co., lumber .	40 77	
Irwing W. Wheeler & Co., awnings	35 53	
Moses G. Crane, cleaning clock, Mason school	35 00	
Water Department, use of water	30 58	
Paine's Furniture Co., furniture	26 75	
A. B. Putney, rugs	20 00	
The E. Howard Watch & Clock Co., clock	20 00	
Timothy Stuart & Son, gravel .	20 00	
Boston Chair Mfg. Co., chairs .	13 50	
John H. Pray, Sons & Co., matting	5 25	
C. A. Harrington, lumber .	5 25	
The Newton Graphic, advertising	5 25	

USE OF TEAMS.

Stephen F. Cate	22 00	
Cornelius McBride	8 75	
H. A. Spear	5 00	
J. R. Atwood	1 50	
Charles B. Bourne	1 00	

EXPRESSAGE.

C. H. Jenison	15 90	
Geo. L. Pearson	3 45	

<i>Amounts carried forward,</i>	\$8,233 61	\$22,000 00
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<i>Amounts brought forward,</i>	\$8,233 61	\$22,000 00
Wilson's Express	3 00	
Newcomb & Snyder	1 00	
Boston & Albany R. R. Co., freight	45 84	

BLACKSMITHING.

J. C. Farrar	7 25	
Charles A. Cole	6 00	
John W. Scott	4 00	
P. A. Murray	1 00	

LABOR MEN AND TEAMS.

John Dolan	18 35	
Myles J. Joyce	15 00	
John Joyce	7 00	
Thomas Hooban	4 00	

MATERIAL AND LABOR.

R. J. Morrissey	2,110 93	
Charles A. Hill	2,049 30	
Hall & Washburn	738 58	
E. B. Badger & Son	634 44	
P. H. O'Brien	629 30	
Higgins & Nickerson	584 28	
H. W. Pierce	566 35	
William Pettigrew	493 61	
T. J. Hartnett	429 50	
M. Frank Lucas	421 58	
H. H. Hunt	406 07	
Daniel Hurley	394 28	
Henry F. Ross	366 91	
V. Haffermehl	355 00	
Stephen Holmes	310 18	
J. M. Norton	286 44	

<i>Amounts carried forward,</i>	\$19,122 80	\$22,000 00
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<i>Amounts brought forward,</i>	\$19,122 80	\$22,000 00
M. Taffe	278 00	
Randall & Hemphill	255 50	
Bemis & Jewett	236 05	
Joseph M. Briggs	226 60	
W. P. Leavitt & Son	222 26	
Bailey & Hardegon	222 12	
Henry F. Wellington	219 40	
Wm. H. French & Co.	209 14	
E. H. Tarbell	161 95	
Allen & Barry	150 27	
Edward Pike	128 41	
Hiram Ross	118 83	
D. P. Gosline	113 51	
Garey & English	108 72	
A. W. Snow	105 59	
M. C. Higgins	104 89	
Sidney G. Steves	100 93	

MATERIAL AND LABOR.

L. H. Cranitch	99 75
F. H. Humphrey, agent	90 91
A. R. Carley	79 25
Milo Lucas	71 13
L. A. Gammons	70 64
Highway Department	67 39
D. O. Driscoll	58 05
J. L. Sears	54 86
C. Kieser	49 89
O. F. Lucas	48 47
Kenrick Brothers	42 67
John Farquhars' Sons	40 87
Fuller & Warren Co.	40 00
Job Monaghan	39 67

<i>Amounts carried forward,</i>	\$22,938 52	\$22,000 00
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<i>Amounts brought forward,</i>	\$22,938 52	\$22,000 00
Water Department . . .	37 03	
G. S. Dalby & Co. . . .	33 64	
Wm. L. Stiles	31 39	
James A. D'Lacey . . .	26 57	
John Cain	25 25	
Louis S. Ross	25 00	
John A. Kerrick, Treasurer .	23 57	
John Cain & Co. . . .	21 08	
Harris E. Johonnot . . .	20 25	
Wm. Delaney	20 00	
F. W. Stevens	16 78	
H. G. Crocker	16 25	
James H. McAdams . . .	16 00	
J. C. Newcomb	15 65	
Wm. F. Whittemore . . .	15 55	
Walworth Construction & Sup- ply Co.	13 10	
Ralph Davenport	12 18	
J. E. Trowbridge	11 70	
J. Foster	9 00	
F. T. Burgess	7 78	
Peter C. Baker	7 60	
Seth W. Fuller	6 70	
B. F. Tripp	6 00	
Isaac Smith	6 00	
Russell Freeman	5 25	
Robert Blair	5 08	
J. F. Horrigan	3 00	
Edward A. Kelley	2 90	
W. L. Smith	2 50	
Robbins & Healey	2 50	
George Spring	2 39	
<i>Amounts carried forward,</i>	\$23,386 21	\$22,000 00

<i>Amounts brought forward,</i>	\$23,386 21	\$22,000 00
Wm. B. McMullen	2 38	
John Marden	2 25	
N. P. Snell	2 00	
J. O. Evans' Son	1 95	
H. S. Josselyn	1 25	

SUPPLIES.

S. O. Thayer & Co. . . .	122 52	
Shepard, Norwell & Co. . .	33 40	
Newton and Watertown Gas Light Co.	20 75	
The Broad Gauge Iron Works .	20 09	
E. Moulton	15 00	
F. E. Stuart	12 00	
W. L. Stiles	11 70	
Dover Stamping Co. . . .	7 50	
Walworth Construction & Sup- ply Co	7 44	
Henry W. Wellington . . .	5 60	
Barber Brothers	4 35	
Arthur L. Hahn	3 00	
Pettee Machine Works . . .	2 38	
C. H. Campbell	2 00	
W. B. Collagan	1 50	
Harry G. Collins	1 00	
Sundry small bills	8 32	

Total, as per item No. 41 of expenses	\$23,674 59
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Amount overdrawn, transferred into excess and deficiency account . . .	1,674 59
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Premium on Tax Sale.

Paid Mary E. Clark in conformity with section 35, chapter 12, of the Public Statutes, as per item No. 42 of expenses	\$20 00
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Read Fund Income.

Paid to sundry parties, in accordance with the will of the late Charles A. Read, income received from the trustees, upon investments, as per item No 43 of expenses	\$1,445 42
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Removal of Ashes.

Appropriation	\$5,000 00
John A. Kenrick, treasurer, labor men and teams, Highway Department	\$4,822 69

BLACKSMITHING.

A. Danforth, agent	55 09
B. F. Barlow	29 59
Murray & Farrell	60
Thomas Belger	30

USE OF PUNG AND CART.

Timothy Stuart & Son	4 25
John Joyce	3 75

MATERIAL AND LABOR.

M. S. Hodgson	13 10
Willard Rand	3 00
T. F. Glennan	1 00

Total, as per item No 44 of expenses	4,933 37
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Balance unexpended, transferred into excess and deficiency account	\$66 63
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Salaries.

Appropriation		\$14,925 00
Hermon E. Hibbard, Mayor	\$1,000 00	
Isaac F. Kingsbury, City Clerk	2,000 00	
John C. Brimblecom, Assistant City Clerk	1,000 00	
John A. Kenrick, City Treasurer and Collector of Taxes . .	3,000 00	
Moses Clark, Jr., Assistant Treasurer and Deputy Col- lector	1,800 00	
Benjamin F. Otis, City Auditor	2,200 00	
Winfield S. Slocum, City Solici- tor	1,250 00	
Joseph D. Wellington, City Mes- senger	1,200 00	
Theo. A. Fleu, assistant to City Auditor	850 00	
Joseph D. Wellington, sealer weights and measures . .	75 00	
John C. Brimblecom, Clerk of Common Council	200 00	
William S. French, milk inspec- tor	250 00	
John C. Brimblecom, services compiling ancient records .	65 00	

Total, as per item No. 45 of expenses	14,890 00
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Balance unexpended, transferred into excess and deficiency account	\$35 00
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Evening Schools.

Appropriation	\$1000 00
Transferred to general appropria- tions for schools.	150 00

<i>Amount carried forward,</i>	\$850 00
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Amount brought forward, \$1,000 00

TEACHERS.

Alonzo R. Weed . . .	\$105 00
Edward F. Stevens . . .	105 00
Martha M. Dix . . .	70 00
William M. Jones . . .	52 50
Florence W. Sampson . . .	52 50
Sarah F. Dorney . . .	52 50
Anastatia Peters . . .	52 50
Mabel W. Langley . . .	43 50
Herbert M. Chase . . .	13 50
Allice E. Macomber, drawing .	56 00

JANITORS.

Joshua L. Randall . . .	26 25
Edward Kelly . . .	15 00
Mary Welsh . . .	11 25
Newton & Watertown Gas	
Light Co., gas . . .	89 80
American Book Co., books .	33 85

PRINTING.

Newton Journal . . .	6 50
The Newton Graphic . . .	2 25
Fanning Printing Co. . .	1 50

SUPPLIES.

Wadsworth, Howland & Co. .	20 00
George S. Perry . . .	10 27
James Dorney . . .	8 50
C. Strout & Sons . . .	5 10
H. W. Pierce . . .	15

Total, as per item No. 46 of expenses \$833 42

Balance unexpended, transferred into excess
and deficiency account \$16 58

Schools.

GENERAL APPROPRIATION, EDUCATIONAL DEPARTMENT.

Appropriation	\$110,000 00	
Additional appropriation by order of City Council . . .	2,100 00	
Received from dog tax for 1890, by order of City Council . .	2,781 18	
Transferred from appropriations for school incidentals, by order of City Council . . .	750 00	
Transferred from appropriation for evening schools, by order of City Council . . .	150 00	
		<hr/>
		\$115,781 18

EXPENDITURES IN DETAIL.

Joseph C. Jones, superintendent	\$3,529 17	
Mary E. Sherwood, secretary of school board	393 75	
Albert L. Harwood, secretary of school board	6 25	
Mary E. Sherwood, clerical assistance	90 00	
		<hr/>
	\$4,019 17	

HIGH SCHOOL.

Edward J. Goodwin, head master	3,000 00	
Ezra W. Sampson, master . .	2,200 00	

ASSISTANT MASTERS.

S. Warren Davis	2,075 00	
Andrew J. George	2,000 00	
George L. Chandler	2,000 00	

<i>Amounts carried forward,</i>	\$15,294 17	\$115,781 18
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Amounts brought forward. \$15,294 17 \$115,781 18

ASSISTANTS.

Marguerite W. Abbott . . .	1,200 00
Maybell P. Davis . . .	1,000 00
Emma F. Johnson . . .	1,000 00
Frances P. Owen . . .	1,000 00
Minerva E. Leland . . .	1,000 00
Josie A. Davis . . .	1,000 00
Annie W. Burbank . . .	968 75
Abby B. Bates . . .	918 75
Julia N. Cole . . .	825 00
Harriet P. Poor . . .	337 50
Emma J. Tyler . . .	112 50

\$24,656 67

SPECIAL TEACHERS.

Horace M. Walton, instruction in music . . .	1,500 00
Jennie E. Ireson, calisthenics, etc.	1,000 00
Ida Collins, drawing and writ- ing	970 00
Alice E. Macomber, drawing .	593 75
George H. Benyon, military drill	400 00

SEWING.

Ellen L. Bond	461 25
Sarah L. Dix	320 62
Julia Grant	281 25
Sarah Ayles	90 00

\$30,273 54

BIGELOW SCHOOL.

H. Chapin Sawin, master . .	2,000 00
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Amounts carried forward, \$32,273 54 \$115,781 18

Amounts brought forward, \$32,273 54 \$115,781 18

ASSISTANTS.

Martha M. Bakeman, first	.	446	25
Annie E. George	. . .	620	00
Emily J. Dyer	. . .	620	00
Elizabeth Ayles	. . .	620	00
Ella M. Donkin	. . .	620	00
Florence H. Griffin	. . .	585	13
Ellen B. Prime	. . .	387	50
Annie B. Blackwell	. . .	187	50
Mabel A. Langley	. . .	34	87
Alice M. Freeman, substitute	.	196	88
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\$36,591 67			

UNDERWOOD SCHOOL.

Charlotte E. Sewall, principal . 700 00

ASSISTANTS.

Ada L. Donkin	. . .	620	00
Josephine W. Littlefield	. . .	620	00
Annie L. Wood	. . .	608	37
Annie R. Smith, substitute	.	11	63
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\$39,151 67			

LINCOLN SCHOOL.

Nellie B. Rand, principal	.	700	00
Mary E. Wall, assistant	. . .	620	00
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\$40,471 67			

ELLIOT SCHOOL.

George G. Edwards, master . \$1,900 00

ASSISTANTS.

Louise W. Burbank, first . 700 00

Amounts carried forward, \$43,071 67 \$115,781 18

<i>Amounts brought forward,</i>	\$43,071 67	\$115,781 18
Louise W. Clelland . . .	620 00	
Ella M. Hersey . . .	430 12	
Anna L. Hazelton . . .	189 88	
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	\$44,311 67	

JACKSON SCHOOL.

Eliza J. Lovely, principal .	700 00
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ASSISTANTS.

Lottie E. Stearns . . .	620 00
Martha Lovely . . .	620 00
Anna A. Early . . .	576 25
Lillian E. Rogers . . .	576 25
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	\$47,404 17

ADAMS SCHOOL.

James W. Applebee, master .	1,900 00
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ASSISTANTS.

Abbie I. Fiske, first . . .	700 00
Mary A. Wellington . . .	620 00
Angelia A. Smith . . .	620 00
Gertrude G. Tewksbury . .	620 00
Myra I. Billings . . .	387 50
Kate S. Chapman . . .	232 50
	<hr/>
	\$52,484 17

CLAFLIN SCHOOL.

Herbert F. Sylvester, master .	\$1,401 26
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ASSISTANTS.

Annie C. Merrett, first . .	700 00
Harriette B. Spooner, first .	498 74

<i>Amounts carried forward,</i>	\$55,084 17	\$115,781 18
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<i>Amounts brought forward,</i>	\$55,084 17	\$115,781 18
Ellen S. Tewksbury . . .	620 00	
Rosa E. Searle . . .	620 00	
Isabelle W. Gladwin . . .	576 25	
Lillian M. Hobart . . .	518 75	
	<hr/>	
	\$57,419 17	

PEIRCE SCHOOL.

Levi F. Warren, master . . .	2,000 00
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ASSISTANTS.

Sarah A. Warren . . .	700 00
Eliza E. Simmons . . .	620 00
Emily F. Wheeler . . .	620 00
Nora Taft . . .	387 50
Helen H. Rogers . . .	387 50
Martha M. Dix . . .	300 00
Mary C. Martin . . .	232 50
Helen M. Freeman . . .	96 25
Helen V. Barton . . .	87 50
Mabel A. Langley, substitute .	9 38
	<hr/>
	\$62,859 80

DAVIS SCHOOL.

M. Alice Warren, principal . .	700 00
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ASSISTANTS.

Alice M. Wormwood . . .	620 00
Sarah E. Foster . . .	620 00
Ada P. Zeigler . . .	620 00
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	\$65,419 80

FRANKLIN SCHOOL.

Elizabeth F. Paddock, principal	\$700 00
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<i>Amounts carried forward,</i>	\$66,119 80	\$115,781 18
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Amounts brought forward, \$66,119 80 \$115,781 18

ASSISTANTS.

Clara H. Thompson . .	620 00
Margaret A. Mague . .	620 00
Alice M. Nelson . . .	620 00
	<hr/>
	\$67,979 80

BARNARD SCHOOL.

Calista S. Wood, principal . 700 00

ASSISTANTS.

Susan E. Copeland . .	620 00
Lizzie F. Jones . . .	620 00
Anna G. Swain . . .	620 00
	<hr/>
	\$70,539 80

WILLIAMS SCHOOL.

John O. Godfrey, master . 1,900 00

ASSISTANTS.

Helen S. Tolman, first . .	700 00
Kate A. Glynn . . .	620 00
Ann B. Smith . . .	620 00
Edith A. Matteson . . .	620 00
Dora A. Allen . . .	620 00
Florence L. Wilson . . .	620 00
Caroline Y. Wentworth . .	620 00
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	\$76,859 80

HAMILTON SCHOOL.

Luther E. Leland, master . 1,900 00

ASSISTANTS.

Ellen M. Leland . . . 620 00

Amounts carried forward, \$79,379 80 \$115,781 18

<i>Amounts brought forward,</i>	\$79,379 80	\$115,781 18
Orissa M. Baxter . . .	620 00	
Blanche A. Henshaw . . .	576 25	
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	\$80,576 05	

PROSPECT SCHOOL.

Charles E. Hussey, master . .	1,900 00
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ASSISTANTS.

Martha L. Perkins, first . . .	700 00
Ella F. Crocker . . .	620 00
Linda E. Nickelson . . .	620 00
M. Ethelyn Stearns . . .	487 50
Marion E. Marsh . . .	312 50
Mary P. Fanning . . .	232 50
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	\$85,448 55

HYDE SCHOOL.

George A. Moore, master . .	1,900 00
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ASSISTANTS.

Margaret E. Atkins, first ,	700 00
N. Grace Gould : . .	620 00
Carrie C. Deuel . . .	558 00
Gertrude Blackmar . . .	387 50
Kate S. Chapman . . .	387 50
Harriet J. Brooks . . .	232 50
Leila A. Deuel . . .	187 50
Flora M. Stuart : . .	62 00
	<hr/>
	\$90,483 55

MASON SCHOOL.

William A. Spinney, master . .	2,000 00
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<i>Amounts carried forward,</i>	\$92,483 55	\$115,781 18
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Amounts brought forward, \$92,483 55 \$115,781 18

ASSISTANTS.

Ellen S. Baker, first	.	.	700	00
Maria F. Wood	.	.	620	00
Roberta J. Hardie	.	.	620	00
Georgia P. Bucknam	.	.	620	00
Della E. Noyes	.	.	620	00
Annie R. Smith	.	.	350	00
Harriet J. Brooks	.	.	310	00
Emma S. Richardson	.	.	206	25
Myra A. Fletcher	.	.	186	00
Lottie A. Tomlinson	.	.	58	13

\$96,773 93

RICE SCHOOL.

Mary E. Mason, principal . 700 00

ASSISTANTS.

Margaret Martin	.	.	620	00
Adelaide L. Thompson	.	.	620	00
Jennie P. Baker	.	.	620	00

\$99,333 93

WABAN SCHOOL

Harriet E. Colburn, principal	.	387	50
Theodora A. Chase, principal	.	232	50
Mabel A. Langley, assistant	.	52	50

\$100,006 43

OAK HILL SCHOOL.

Theodora A. Chase, principal	.	343	75
Mary S. Maynard, principal	.	187	50

Amounts carried forward, \$100,537 68 \$115,781 18

Amounts brought forward, \$100,537 68 \$115,781 18

THOMPSONVILLE SCHOOL.

Helen A. Davis, principal	.	437	50
Mary Tenney, principal	.	262	50
		<hr/>	
		\$101,237	68

JANITORS.

John Cummings, High	.	618	00
Michael F. Powers, High	.	480	00
James R. Green, Bigelow and Underwood	.	512	00
Charles R. Young, Bigelow and Underwood	.	256	00
Mary Welch, Eliot and Jackson		502	25
Edward A. Kelly, Eliot and Jackson	.	85	75
Honorah Sweeney, Lincoln	.	144	00
Mary A. Delaney, Adams	.	360	00
John Dorney, Claflin	.	660	00
George W. Cross, Peirce	.	360	00
James H. Proctor, Davis	.	264	00
Bridget Cox, Franklin	.	264	00
John Woody, Barnard	.	264	00
Martin Walsh, Williams	.	540	00
James H. Boit, Hamilton	.	276	00
Joshua L. Randall, Prospect	.	372	00
George M. Geyer, Hyde	.	300	00
John R. Henderson, Hyde	.	60	00
A. C. Marston, Mason and Rice		732	00
Wm. E. Wiswall, Oak Hill	.	108	00
John A. Hahn, Thompsonville	.	96	00
Michael Cummings	.	36	00

Amounts carried forward, \$108,527 68 \$115,781 18

Amounts brought forward, \$108,527 68 \$115,781 18

FUEL.

C. F. Eddy & Co. . . .	5,403 45
J. W. Mitchell	1,509 23
Alms-house Department . .	216 00
Moses G. Crane	102 70
Albert Brackett & Son . .	18 89

Total, as per item No. 47 of expenses \$115,777 95

Balance unexpended, transferred into excess
and deficiency account \$3 23

School Incidentals.

Appropriation	\$9,000 00
Additional appropriation by or- der of City Council	100 00
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	\$9,100 00

Transferred to general appro- priation for schools	750 00	
	<hr/>	\$8,350 00

BOOKS.

American Book Co.	\$725 33
Ginn & Co.	518 31
William Ware & Co. . . .	299 37
Leach, Shewell & Sanborn .	116 75
Lee & Shepard	92 25
Willard Small	77 92
Carl Schoenhof	68 98
D. C. Heath & Co.	66 66
DeWolfe, Fiske & Co. . . .	34 78

Amounts carried forward, \$2,000 35 \$8,350 00

<i>Amounts brought forward,</i>	\$2,000 35	\$8,350 00
Effingham, Maynard & Co.	28 10	
J. B. Lippincott & Co.	17 36	
Allyn & Bacon	15 78	
Interstate Publishing Co.	10 42	
University Publishing Co.	9 17	
Houghton, Mifflin & Co.	8 40	
Warren P. Adams	7 44	
Drew, Allis & Co.	2 00	
Water Department, use of water	574 27	
Newton & Watertown Gas Light Co., gas	146 63	
Odorless Excavating Co., clean- ing cesspool	140 00	
N. E. Telephone & Tel. Co., rentals	32 90	
Mary E. Sherwood, clerical as- sistance	150 85	
George E. Bridges, taking cen- sus of children from 5 to 15	100 00	
J. H. Daniels, diplomas	111 95	
Robert Burlen, binding books	178 80	
J. D. F. Brooks, binding books	155 68	
Salem Cadet Band, services	55 10	
C. E. Hastings, repairing clocks	53 50	
John B. Turner, stamps	49 00	
Geo. H. Brown, tuning pianos	31 75	
Soule Photograph Co., photo- graph	18 41	
J. Q. Harrington, sharpening mowers	4 50	

PRINTING.

Fanning Printing Co.	412 66	
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<i>Amounts carried forward,</i>	\$4,315 02	\$8,350 00
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<i>Amounts brought forward,</i>	\$4,315 02	\$8,350 00
Newton Journal . . .	87 75	
The Newton Graphic . .	48 25	
Robert G. Howard . . .	3 00	
City of Newton, for paper .	52 53	

TRUANT OFFICERS.

Winslow J. Fiske . . .	76 82
George Linn . . .	21 00
J. W. Howe . . .	17 75
Charles R. Young . . .	7 75
James H. Boit . . .	3 50
Charles Tapply . . .	3 00

FURNITURE.

A. G. Whitecomb . . .	103 75
L. D. Whittemore, Jr. . .	71 00
J. D. Billings . . .	32 06
W. H. Cooley . . .	5 05

TRAVELLING EXPENSES.

Joseph C. Jones . . .	17 65
Ellen L. Bond . . .	14 90
Martha M. Dix . . .	7 95
Sarah L. Dix . . .	4 80
Julia Grant . . .	3 28
Sarah Ayles . . .	3 14

EXPRESSAGE.

F. H. Hunting . . .	8 60
Eames Express . . .	2 00
C. H. Jenison . . .	1 00

USE OF TEAMS.

Henry C. Daniels . . .	12 75
Stephen F. Cate . . .	12 00

<i>Amounts carried forward,</i>	\$4,936 30	\$8,350 00
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Amounts brought forward, \$4,936 30 \$8,350 00

MATERIAL AND LABOR.

James Dorney, labor . . .	43 75
Thomas Johnson, labor . . .	62 25
Milo Lucas	50 36
O. F. Lucas	22 53
D. H. McWain	8 91
Henry F. Wellington . . .	16 36
J. O. Evans' Son	7 15
H. W. Calden	5 25
G. W. Ulmer	4 50
Ralph Davenport	3 20
Joseph Abbott	2 80
J. L. Randall	2 50
John C. Haynes & Co. . . .	1 50
Joseph Breck & Sons . . .	1 50
H. S. Josselyn	1 25

SUPPLIES.

George S. Perry	\$1,757 04
Thorp Adams M'fg Co. . . .	337 25
Educational Supply Co. . . .	255 76
J. L. Hammett	168 13
J. A. Swasey	157 50
Wm. Read & Sons	70 00
W. C. Gaudelet	49 51
H. W. Pierce	46 36
Geo. F. King & Merrill . . .	42 04
Stevens Brothers	24 70
Henry M. Burr	21 63
George H. Barton	18 40
Boston School Supply Co. . .	14 94
Barber Brothers	14 19

Amounts carried forward, \$8,147 56 \$8,350 00

<i>Amounts brought forward,</i>	\$8,147 56	\$8,350 00
S. B. Holman & Co. . . .	13 00	
Wilson, Larrabee & Co. . .	11 64	
Bailey Disinfectant Co. . .	8 75	
Silver, Burdette & Co. . . .	8 49	
E. Moulton	5 87	
W. J. Holmes	5 65	
W. L. Smith	5 50	
C. H. Campbell	5 26	
J. Henry Bacon	4 51	
Howard B. Coffin	4 11	
Mrs. H. B. Spooner	4 00	
J. E. Trowbridge	3 55	
I. R. Stevens	3 54	
Jordan, Marsh & Co. . . .	3 50	
G. H. Talbot	3 00	
A. A. Savage	2 67	
George Frost & Co.	2 50	
E. C. Chandler	2 50	
S. O. Thayer & Co.	1 80	
Sundry small bills	2 53	

Total, as per item No. 48 of expenses	8,249 93	.
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Balance unexpended, transferred into excess and deficiency account . . .	\$100 07
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Sewerage.

Appropriation	\$2,000 00
Edward A. Buss, services on plans	\$2,146 40
Pay roll of assistant engineers for work on plans	187 27
Albert F. Noyes et al., sundry cash expenses	19 10

<i>Amounts carried forward,</i>	\$2,352 77	\$2,000 00
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<i>Amounts brought forward,</i>	\$2,352 77	\$2,000 00
Mrs. Stella J. Vose, clerk .	14 00	

Total, as per item No. 49 of expenses	\$2,366 77
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Amount overdrawn, transferred into excess and deficiency account .	\$366 77
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Sewer Construction.

James Killian, as per contract .	\$48,131 40
Amount paid assistant engineers, inspectors, labor men and teams, as per pay rolls .	21,038 79
Boston & Albany R. R., freight	16,469 73
M. W. Sands, brick . . .	13,511 71
John A. Kenrick, treasurer, paid laborers on account of dis- charge tickets . . .	468 74

PIPE.

Evans & Howard . . .	11,975 12
Potomac Terra Cotta Co. . .	7,560 41
Waldo Brothers . . .	5,492 09
Lucian A. Taylor . . .	250 83
Berry & Ferguson . . .	106 16
F. E. Hamblin . . .	39 78

CEMENT.

Smith & Green . . .	5,310 88
Waldo Brothers . . .	844 07
Wm. H. Mague . . .	44 82
C. F. Eddy & Co. . .	15 00
Osgood & Hart, castings . .	2,490 80
Dodge, Haley & Co., tools .	225 22

<i>Amount carried forward,</i>	\$133,975 55
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<i>Amount brought forward,</i>	\$133,975 55
Sewall & Day Cordage Co., packing	285 26
Rudolph Hering, consultation .	402 60
Lucian A. Taylor, consultation	20 00
Edward A. Buss, work on plans	786 71
Bacon & Co., spikes	124 87
Boston Belting Co., belting .	90 06
M. Frank Lucas, stakes . . .	76 55

PRINTING.

Fanning Printing Co., printing	283 26
Rockwell & Churchill . . .	61 33
J. M. W. Yerrinton	36 35
The Newton Graphic	13 25
Coburn Brothers	2 60

ADVERTISING.

Newton Journal	14 00
The Boston Herald Co. . . .	1 00

RUBBER BOOTS.

Parker, Holmes & Co.	83 64
J. McCammon	3 70
C. A. Harrington, lumber .	240 00
J. L. Allen, bicycle	95 00
Geo. H. Sampson, powder .	64 85
C. Bowditch Coffin, acknow- ledgements	50 60
Union Desk Co., desk	32 00
Albert Brackett & Son, coal .	22 25
MacDonald Bro., awning . .	13 00
Union Oil Co., oil	10 50
J. B. White & Co., hand truck	10 00
Union Carpet lining Co., waste	7 68

Amount carried forward, \$136,806 61

<i>Amount brought forward,</i>	\$136,806 61
Newton Cemetery, wood . . .	7 00
Albert F. Noyes et al., sundry cash expenses	736 51
Miss Sarah L. Patrick, copies of contract	12 00
Miss F. W. Cushing, type writ- ing	6 30
Sidney Smith, legal services . .	10 00
C. F. Richardson, serving warrants	6 32
Charles H. Stacy, telegrams . .	25 54

SETTLEMENT OF CLAIMS.

William L. Graves	500 00
Albert Brackett	421 59
John P. Croft	75 00
Mrs. Bridget Dwyer	40 00
Thomas Stanley	31 90
Andrew and Bridget Broderick	31 56
James Delaney	25 00
John Stanley	24 59
T. C. Baldwin	18 67
John Purcill	18 22
Mrs. Mary Linsky	15 61
Alex. Maguire	15 53
James Lennan	14 43
Mrs. Julia Burke	9 93
Martin Lawler	9 34
Peter Burke	8 65

USE OF TEAMS.

Timothy Stuart & Son . . .	272 82
Henry C. Daniels	232 62
Stephen F. Cate	232 00
<i>Amount carried forward,</i>	<hr/> \$139,607 74

<i>Amount brought forward,</i>	\$139,607 74
A. F. Harrington . . .	177 50
Michael McDonald . . .	100 12
Thomas F. Mague . . .	55 95

BLACKSMITHING.

P. A. Murray	84 19
B. F. Barlow	24 00
O'Brien & Purdy . . .	4 75

EXPRESSAGE.

F. H. Hunting	19 45
George L. Pearson . . .	3 10
Charles H. Jenison . . .	2 57
W. J. Holmes	1 50
J. S. Roberts	1 00
Fitchburg R. R. Co., freight .	31 20
H. H. Hunt, contract building cement shed, etc. . . .	730 76
Thomas F. Mague, labor etc., at cement shed	197 00

MATERIAL AND LABOR.

Higgins & Nickerson . . .	78 37
Russell Freeman	50 26
Water Department . . .	37 03
Stephen Holmes	35 80
W. J. Henderson	34 43
Samuel A. Piper	27 79
C. N. Allen & Co. . . .	22 05
H. W. Pierce	14 30
John A. Kenrick, treasurer .	14 00
M. C. Higgins	13 27
Pettee Machine Works . .	13 19
Highway Department . . .	9 25

Amount carried forward, \$141,390 57

<i>Amount brought forward,</i>	\$141,390 57
J. O. Evans' Son . . .	7 80
Adams Machine Shop . . .	2 00
L. H. Cranitch . . .	2 00

SUPPLIES.

Perrin, Seamans & Co. . .	1,553 87
Walworth Manf'g Co. . .	134 70
Dame, Stoddard & Kendall . .	66 31
John S. Sumner . . .	63 92
C. H. Campbell . . .	38 75
W. W. White & Co. . .	32 64
Charles C. Hutchinson . . .	30 00
Spaulding Morss . . .	26 13
Edward A. Hammond . . .	24 29
Thorp & Adams M'f'g Co. . .	24 00
Aaron R. Gay & Co. . .	23 75
O. F. Lucas . . .	21 34
Bradlee, Hastings & Co. . .	21 23
Wilson & Marshall . . .	21 15
Grundy Brass Works . . .	15 45
Charles Spaulding . . .	13 25
Joseph Lee . . .	12 50
Oscar F. Howe . . .	12 24
Wadsworth, Howland & Co. . .	12 00
M. R. Warren . . .	11 70
Thomas Groom & Co. . .	9 58
Frost & Adams . . .	9 63
Chandler & Farquhar . . .	9 21
Boston & Lockport Block Co. .	8 00
G. P. Atkins . . .	5 92
F. E. Stuart . . .	5 00
Abram French Co. . .	5 00
S. M. Spencer . . .	4 54

Amount carried forward, \$143,618 47

<i>Amount brought forward,</i>	\$143,618 47
A. Lamson	3 50
J. D. Wellington	3 10
Asa L. Shipmans' Sons	2 40
A. O. Doane	2 21
Samuel Hobbs & Co.	1 93
F. H. Humphrey, agent	1 00

HOUSE CONNECTIONS.

John A. Kenrick, treasurer, amount paid laborers, as per pay rolls	4,392 08
John A. Kenrick, treasurer, amount paid laborers, as per discharge tickets	20 81
Stephen Child, cash expenses	14 01
C. A. Harrington, lumber	64 14
Waldo Brothers, pipe	64 74
Stephen F. Cate, use of team	24 00
Thomas F. Mague, sand	20 25
The Newton Graphic, printing	16 50
Dr. J. F. Frisbie, medical at- tendance	10 00
Maverick Oil Co., oil	4 35
George H. Sampson, powder	4 04
Union Carpet Lining Co., jute	3 19
B. & A. R. R. Co., freight	1 20

BLACKSMITHING.

P. A. Murray	76 11
B. F. Barlow	6 15

MATERIAL AND LABOR.

Stephen Holmes	10 81
Russell Freeman	9 75

Amount carried forward, \$148,374 74

<i>Amount brought forward,</i>	\$148,374 74
J. O. Evans' Son	2 60
W. J. Henderson	53

SUPPLIES.

Walworth Mfg. Co. . . .	125 25
Perrin, Seamans & Co. . .	109 41
Chandler & Farquhar . .	7 84
G. P. Atkins	5 03
S. O. Thayer & Co. . . .	1 65
Aaron R. Gay & Co. . . .	1 50
C. H. Campbell	40

\$148,628 95

ON ACCOUNT OF KILLIAN CONTRACT.

John A. Kenrick, treasurer, amount paid for labor, as per pay rolls	\$50,069 75
John A. Kenrick, treasurer, amount paid laborers, as per discharge tickets . .	1,519 63
Thomas F. Mague, sand . .	482 25
John T. Scully, piles and driv- ing same	182 64
Maverick Oil Co., oil . .	93 56
Jacob Foster, blacksmithing .	55 75
Sewall & Day Cordage Co., packing	46 77
Bacon & Co., spikes . .	31 76
Simpson Brothers, concreting .	24 59
J. McCammon, rubber boots .	14 00
Union Oil Co., disinfectant .	7 00

Amount carried forward, \$201,156 65

<i>Amount brought forward,</i>	\$201,156 65
D. Waldo Stearns, medical attendance	4 00
Carson Trench Machine Co., rent of machines	679 16
John Lowell, Jr., Att'y., rent of engine and pump . . .	353 14
Charles C. Rollins, rent of engine	90 50
D. Henry Cram, rent of engine and hauling same . .	71 78

LUMBER.

C. A. Harrington	2,547 08
Wood, Barker & Co. . . .	10 76
Gilkie & Stone	10 71

TOOLS, ETC.

Perrin, Seamans & Co. . . .	3,652 74
Dodge, Haley & Co. . . .	669 09
Waldo Brothers	210 48
Ames Plow Co.	104 93

COAL.

Albert Brackett & Son . . .	715 75
C. F. Eddy & Co.	150 38

POWDER.

George H. Sampson	569 73
A. J. Wellington	87 00

USE OF TEAMS.

Henry C. Daniels	284 00
George W. Bush	42 00
Wm. H. Mague	41 00
O. Nute & Son	38 00
Michael McDonald	25 00

Amount carried forward, \$211,513 88

Amount brought forward, \$211,513 88

EXPRESSAGE.

George L. Pearson . . .	17 65
F. H. Hunting . . .	17 40
J. S. Roberts . . .	4 15
Adams Express Co. . .	95
B. & A. R. R. Co., freight .	4 61

PRINTING.

The Newton Graphic . . .	27 85
Edgar A. Brown . . .	17 75

BAGGING.

Hecht, Brothers & Co. . .	129 12
Union Carpet Lining Co. . .	12 47

MATERIAL AND LABOR.

Henry F. Ross . . .	92 85
H. W. Pierce . . .	16 95
Water Department . . .	15 61
C. N. Allen & Co. . .	14 98
M. C. Higgins . . .	7 07
Adams Machine Shop . . .	1 90
M. S. Hodgson . . .	50

SUPPLIES.

Charles River Iron Works .	343 50
C. H. Campbell . . .	93 30
Boston Belting Co. . .	59 76
Dame, Stoddard & Kendall .	41 76
Aaron R. Gay & Co. . .	19 05
Boston & Albany R. R. Co. .	9 73
Thomas Groom & Co. . .	8 31
Abram French Co. . .	8 25
S. O. Thayer & Co. . .	3 30

Amount carried forward, \$212,482 65

<i>Amounts brought forward.</i>	\$212,482 65
Hubbard & Proctor	3 10
John Stanley	2 35
Fred H. Kirwin	2 05
Howard B. Coffin	1 80
The Thorpe & Adams M'f'g Co.	1 60
Walworth M'f'g Co.	35

Total, as per item No. 50 of expenses \$212,493 90

RECEIVED.

From sundry persons on account of house connection with sewer	\$4,429 92
From special dr'ns and culverts for pipe	2,491 15
From Drains and culverts, for pipe	590 24
From Osgood & Hart, refund of bill approved in error	100 00
From Tim Donahoe, refund wages approved in error	7 00
From water construction, for pipe	8 82

Total as per item No. 44 of receipts 7,627 13

Total expenditure to Dec. 31, 1891 \$204,866 77

Sinking Fund—City Debt.

Appropriation	\$29,000 00
Amount paid commissioners of sinking fund, as per item No. 51 of expenses	29,000 00

Sinking Fund—School Loan.

Appropriation	\$4,000 00
Amount paid commissioners of sinking fund, as per item No 52 of expenses	4,000 00

Sinking Fund—Water Bonds.

Appropriation	\$23,000 00
Amount paid commissioners of sinking fund, as per item No. 53 of expenses	23,000 00

Soldiers' Relief.

Appropriation	\$1,000 00
Paid to sundry persons, under the provisions of chapter 447, Acts of 1890, as per item No. 54 of expenses	886 99

Balance unexpended, transferred into excess and deficiency account	\$113 01
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State Aid.

Appropriation,	\$1,100 00
Mary Allen	\$48 00
Anna C. Boyd	48 00
Joseph Bergeron,	48 00
Mary Duran	48 00
Thomas Dennen	48 00
Sarah Fell	48 00

<i>Amounts carried forward,</i>	\$288 00	\$1,100 00
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<i>Amounts brought forward,</i>	\$288 00	\$1,100 00
Almira D. Hall . . .	48 00	
Hugh Hamill . . .	48 00	
Agnes Myers . . .	48 00	
Susan A. Nutting . . .	48 00	
Thomas Probert . . .	48 00	
Joshua V. Ramsdell . . .	48 00	
Ellen Russell . . .	48 00	
Mary A. Sullivan . . .	48 00	
Sylvanus H. Wright . . .	48 00	
Albert C. Dearborn . . .	45 00	
Ann E. Blanchard . . .	40 00	
Sarah E. Bowker . . .	36 00	
James Delaney . . .	36 00	
James Vickers . . .	32 00	
Sarah W. White . . .	24 00	
Josiah P. Bittner . . .	24 00	
John Taffe . . .	20 00	
William Watson . . .	18 00	
George F. Green . . .	18 00	
Amelia M. Young . . .	16 00	
Catherine McAleer . . .	12 00	
Bridget A. Wright . . .	12 00	
John Magoley . . .	4 00	

Total, as per item No. 55 of expenses		\$1057 00
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Balance unexpended, transferred into excess and deficiency account .		\$43 00
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Street Light Department.

Appropriation . . .		\$25,500 00
Newton & Watertown Gas Light Co., for gas and care of 806 lamps . . .	\$9,520 00	

<i>Amounts carried forward,</i>	\$9,520 00	\$25,500 00
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<i>Amounts brought forward,</i>	\$9,520 00	\$25,500 00
For 79 arc lights	7,649 96	
For 440 incandescent lights	5,883 77	
For oil and care 171 lamps	1,699 22	
For lighting Auburndale subway	24 00	
Central stable, use of team	6 00	

Total, as per item No. 56 of expenses	\$24,782 95
Balance unexpended, transferred into excess and deficiency account	<u>\$717 05</u>

Taxes, 1891—County.

Amount assessed for county tax	\$27,421 81
Amount paid to county treasurer, as per item No. 57 of expenses	27,421 81

Taxes, 1891—National Bank.

Amounts paid to Commonwealth of Massachusetts for non-residents of Newton, national bank shares, as per item No. 58 of expenses	\$1,358 71
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Taxes, 1891—State.

Amount assessed for State tax	\$25,545 00
Amount paid to State treasurer, as per item No. 59 of expenses	25,545 00

Temporary Loans.

March 18, paid Brewster, Cobb & Estabrook	\$10,000 00
March 18, paid Boston Safe Deposit & Trust Co.	25,000 00
April 1, paid Josiah B. Newell	1,500 00
April 1, paid Edith C. Newell	1,500 00
April 1, paid Elizabeth A. Newell	1,300 00
<i>Amount carried forward,</i>	<u>\$39,300 00</u>

<i>Amount brought forward,</i>	\$39,300 00
April 9, paid New England Trust Co. . . .	20,000 00
May 29, paid New England Trust Co. . . .	30,000 00
Sept. 29, paid New England Trust Co. . . .	30,000 00
Oct. 28, paid New England Mutual Life Insurance Co.	60,000 00
Oct. 29, paid Merchants National Bank . . .	30,000 00
Nov. 2, paid New England Trust Co. . . .	50,000 00
Nov. 2, paid Merchants National Bank . . .	50,000 00
Nov. 6, paid Suffolk Savings Bank	25,000 00
Nov. 16, paid Commonwealth of Massachusetts	25,000 00
Nov. 28, paid Trustees of Read Fund . . .	40,000 00
Dec. 14, paid National Bank of Redemption .	15,000 00
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Total, as per item No. 60 of expenses	\$414,300 00

Waban School House.

SPECIAL APPROPRIATION.

Appropriation	\$15,000 00
Sidney G. Steves, construction of building, as per contract	\$12,241 89
Fuller & Warren Warming and Ventilating Co., furnace, etc.	800 00
H. H. Kendall, architect	440 20
The Yale & Towne Mfg. Co., hardware	256 86
Albany Venetian Blind Co., blinds	61 88
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Total, as per item No. 61 of expenses	\$13,800 83
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Balance carried forward,	\$1,199 17

Water Construction.

Total expenditures to December 31, 1890	\$1,416,697 44
Pay rolls City Engineer's assistants and laborers . . .	\$35,352 99
John A. Kenrick, treasurer, amount paid laborers on discharge tickets . . .	438 41
Wm. H. Mague, contract on reservoir . . .	15,076 10
James A. Cahill, labor, etc. basin	3,648 44
H. W. Leach & Co., building foundation for new pumping engine . . .	874 02

LAND IN NEEDHAM.

Dexter Kingsbury . . .	375 00
George H. Gay . . .	357 50
John A. Wing . . .	315 00
Joseph H. Rowe . . .	200 00
Denys Zirngiebel . . .	140 00
Hanner B. Smith . . .	120 00
Henry Bowers . . .	100 00
Catherine C. Pickett . . .	42 00
G. W. Tisdale & Son, legal services . . .	110 00
C. Atherton Hicks, surveys, etc.	40 00
Town of Needham, taxes . .	25 10

SUNDRY CASH EXPENSES.

Albert F. Noyes . . .	88 92
H. N. Hyde . . .	36 16
J. C. Whitney . . .	6 10

PIPE.

Warren Foundry & Machine Co.	25,579 07
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Amounts carried forward, \$82,924 81 \$1,416,697 44

<i>Amounts brought forward,</i>	\$82,924 81	\$1,416,697 44
Chadwick Lead Works, lead pipe	3,308 85	
C. F. Eddy & Co., drain . . .	56 64	
Sewer Department, drain . . .	8 82	

METERS.

Hersey Mfg. Co.	3,329 00	
National Meter Co.	142 70	
Thomson Meter Co.	31 23	
D. M. Hammond	9 00	
Union Water Meter Co., repairs	24 10	
Holyoke Hydrant & Iron Works, hydrants	1,663 50	
City Iron Foundry, water gates	1,354 92	
Builders' Iron Foundry, castings	1,175 74	
Chapman Valve Mfg. Co., valves	876 00	
M. W. Sands, brick	727 50	
F. H. Hale, granite	707 40	
George H. Sampson, powder . .	426 70	
American Powder Mills, powder	37 08	
E. R. Cheney, pump	398 80	
Fiske, Coleman & Co., cement .	304 70	
Waldo Brothers, cement	186 05	
G. E. Winslow, indicator	290 00	
George H. Ellis, use of engine .	100 00	
Fairbanks, Brown & Co., hay scales	110 00	
Thomas McKinley, inspecting pipe	90 00	
Carson Trench Machine Co., rent of machine	84 44	
Parker, Holmes & Co., rubber boots	59 24	
E. C. Buckley, for meals	43 61	

<i>Amounts carried forward,</i>	\$98,470 83	\$1,416,697 44
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<i>Amounts brought forward,</i>	\$98,470 83	1,416,697 44
Henry F. Jenks, fountain	40 00	
Alden Spears' Sons & Co., oil	35 11	
Cobb, Bates & Yerxa, oatmeal	28 32	
Newton & Watertown Gas Light Co., poles	20 25	
N. & W. Gas Light Co., coke	13 50	
C. F. Eddy & Co., coal	7 66	
J. R. McLaughlin, care sick horse	7 50	
Madison Bunker, care sick horse	6 50	
John P. Keating, stone	5 75	

MEDICAL ATTENDANCE.

Dr. James H. Bodge	7 00	
Dr. H. B. Stoddard	4 00	
N. W. Tupper, grain	357 37	
J. P. Bent, hay	102 89	
N. W. Tupper, hay and straw	18 22	
Newton Graphic, advertising	10 00	
Jeremiah Cotter, hauling pipe	403 84	
Sewall & Day cordage Co., pack- ing	84 54	
J. Cotter & Son, unloading cars	85 00	
Sherbourne & Co., waste	3 10	
George H. Ellis, ice	3 07	

FREIGHT.

Boston & Albany R. R. Co.	2,429 84	
N. Y. & N. E. R. R. Co.	59 12	
Fitchburg R. R. Co.	4 50	

EXPRESSAGE.

F. H. Hunting	90 30	
Atkinson's Express	30 20	
Charles E. Bishop	2 00	

<i>Amounts carried forward,</i>	\$102,330 41	1,416,697 44
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Amounts brought forward, \$102,330 41 \$1,416,697 44

LABOR MEN AND TEAMS.

James A. Cahill . . .	1,234 45
Timothy Stuart & Son . .	69 73
John Joyce . . .	43 75
Thomas F. Mague . . .	11 50

USE OF TEAMS.

Timothy Stuart & Son . .	770 15
A. F. Harrington . . .	426 50
Stephen F. Cate . . .	161 50
Thomas F. Mague . . .	61 10
Jere Cotter & Son . . .	55 25
Estate of O. P. Leavitt . .	23 00
John P. Keating . . .	8 75
Central stables . . .	3 00
H. A. Spear . . .	2 00

BLACKSMITHING.

P. A. McVicar . . .	\$110 82
B. F. Barlow . . .	79 72
J. C. Farrar . . .	70 98
Thomas Belger . . .	49 25
P. A. Murray . . .	30 03
Charles A. Cole . . .	27 50
A. Danforth, agent . . .	25 85
Andrew Peters . . .	22 00
Patrick B. Farrell & Co. .	19 50
S. D. Keegan . . .	12 84
Delaney, Leland & Hewitt .	9 24
Murray & Farrell . . .	6 28

LUMBER.

W. H. Leatherbee & Son .	131 90
C. A. Harrington . . .	91 53

Amounts carried forward, \$105,888 53 \$1,416,697 44

<i>Amounts brought forward,</i>	\$105,888 53	\$1,416,697 44
Glendon & Co.	72 16	

MATERIAL AND LABOR.

Wm. H. Mague	646 70
Charles Carr	227 25
C. H. & A. F. Ireland	183 00
S. A. Piper	39 39
M. S. Hodgson	31 51
Alex. Griswold	26 37
Higgins & Nickerson	16 80
Adams Machine shop	11 90
M. J. Donahoe	10 00
P. Y. Hoseason	6 00
L. H. Cranitch	5 92
T. J. Hartnett	3 85
F. H. Humphrey	3 26
O'Brien & Purdy	2 50
H. H. Hunt	2 34
W. H. French & Co.	1 65
M. C. Higgins	1 60
The Leach & Grant Co., labor	59 40

SUPPLIES.

Davis & Farnum M'fg Co.	2,262 80
Sweatt & Chase	1,724 25
Walworth M'fg Co.	1,029 80
Bradlee, Hastings & Co.	258 92
Park, Brother & Co., limited	149 60
Parker & Wood	106 01
Taunton Locomotive M'fg Co.	88 75
H. M. Darling & Co.	71 00
The Geo. Woodman Co.	53 35
Kent & Gore	47 16

<i>Amounts carried forward,</i>	\$113,031 77	\$1,416,697 44
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<i>Amounts brought forward,</i>	\$113,031 77	\$1,416,697 44
Edison M'fg Co.	41 89	
Dodge, Haley & Co.	36 78	
F. A. Hale	32 70	
Chelmsford Foundry Co.	32 00	
A. J. Wilkinson & Co.	31 66	
A. A. Savage	25 33	
Revere Rubber Co.	21 00	
Pettee Machine Works	17 38	
Henry W. Wellington	17 01	
Perrin, Seamans & Co.	15 70	
Chandler & Farquhar	14 55	
Boston & Lockport Block Co.	11 15	
C. H. Campbell	9 65	
Freeman K. Kingman	6 00	
A. W. Mitchell Mfg. Co.	5 00	
Boston Bolt Co.	4 75	
H. W. Pierce	4 60	
Burdett & Williams	4 50	
Hooper, Lewis & Co.	4 00	
Norcross, Mellen & Co.	3 60	
Gould & Cutler	3 50	
Charles Carr	2 85	
W. M. Russell	2 65	
J. A. & W. Bird & Co.	2 10	
Brown & Sharpe Mfg. Co.	1 50	
Sundry small bills	6 47	

Total, as per item No. 62 of expenses \$113,390 09

RECEIVED.

From R. L. Day &
Co., 5.637 per
cent. premium
on \$50,000, City
of Newton water
bonds . . . \$2,818 50

Am'ts carried forw'd, \$2,818 50 \$113,390 09 \$1,416,697 44

<i>Am'ts brought forward,</i>	\$2,818 50	\$113,390 09	\$1,416,699 44
From R. L. Day & Co., 1.036 per cent. premium on \$50,000, City of Newton water bonds . . .	518 00		
From R. L. Day & Co., 1.073 per cent. premium on \$45,000, City of Newton water bonds . . .	482 85		
From Wm. F. Har- bach, adminis- trator, 2 per cent. premium on \$5,000, City of Newton water bonds . . .	100 00		
Thomas A. Rowe, for old rails . . .	440 99		
Town of Wellesley, for pipe . . .	748 15		
City of Somerville, for water pipe .	357 07		
Waltham Water Works, for pipe	115 65		
Warren Foundry & Machine Co., for refund of freight bill . . .	29 17		
Chadwick Lead Works, for reels returned . . .	14 96		
<i>Am'ts carried forward,</i>	\$5,625 34	\$113,390 09	\$1,416,697 44

Amt's brought forward, \$5,625 34 \$113,390 09 \$1,416,697 44

Charles Temperley,
for wood . . . 12 64

Material and labor on
fountain, New-
ton Highlands . . . 12 53

O'Brien & Purdy, re-
fund of bill . . . 2 50

Total, as per item No. 56
of receipts . . . \$5,653 01

\$107,737 08

Total expenditure to Dec. 31, 1891 \$1,524,434 52

Water Maintenance.

Appropriation 14,000 00

SALARIES.

J. C. Whitney, registrar . . . 2,100 00

H. N. Hyde, superintendent . . . 1,700 00

Thomas Coughlan, engineer at
pumping station . . . 1,205 00

Miss E. D. Hinckley, clerk . . . 721 00

J. C. Whitney, cash expenses . . . 15 51

H. N. Hyde, cash expenses . . . 6 05

Pay rolls of laborers . . . 3,870 58

J. W. Mitchell, coal . . . 3,035 18

C. F. Eddy & Co., coal . . . 48 00

Daniel Sullivan, wood . . . 12 20

N. W. Tupper, grain . . . 114 00

B. Billings, grain . . . 1 24

J. P. Bent, hay . . . 45 37

Amounts carried forward, \$12,874 13 \$14,000 00

<i>Amounts brought forward,</i>	\$12,874 13	\$14,000 00
John S. Nason, exchange of horse	55 00	
J. R. McLaughlin, care of sick horse	9 50	
Madison Bunker, care of sick horse	2 17	

TAXES.

Town of Needham	154 78	
A. Wiswall	42 54	
I. W. Hastings, photographs	27 80	
T. Albert Ward, care of reservoir	75 00	
Sherbourne & Co., waste	16 50	
D. E. Buckley, meals	12 00	
Fire department, service at pumping station	7 15	
John B. Turner, stamps	3 00	
Newton & Watertown Gas Light Company, gas	3 40	
The Newton Graphic, printing	2 25	

OIL.

E. W. Bigelow & Co.	54 63	
F. W. Gregory & Co.	31 59	

EXPRESSAGE.

F. H. Hunting	2 55	
C. H. Jenison	1 20	

USE OF TEAMS.

Timothy Stuart & Son	38 47	
A. F. Harrington	12 00	
Stephen F. Cate	6 00	
Estate of O. B. Leavitt	4 00	

<i>Amounts carried forward,</i>	\$13,435 66	\$14,000 00
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<i>Amounts brought forward,</i>	\$13,435 66	14,000 00
Willard Rand . . .	3 50	
George W. Bush . . .	2 50	

BLACKSMITHING.

P. A. McVicar . . .	36 36	
B. F. Barlow . . .	16 67	
A. Danforth, agent . .	9 49	
Delaney, Leland & Hewitt .	4 09	
Murray & Farrell . . .	2 01	
P. A. Murray . . .	1 84	
Thomas Belger . . .	1 75	
Patrick B. Farrell & Co. .	1 39	

MATERIAL AND LABOR

Leach & Grant Co. . .	73 98	
Mullen & Stevenson . .	60 00	
J. D. Billings . . .	28 63	
Alex. Griswold . . .	8 80	
Higgins & Nickerson . .	7 21	
L. H. Cranitch . . .	6 80	
L. Nickerson . . .	6 50	
Adams Machine Shop . .	6 00	
M. S. Hodgson . . .	5 72	
Pettee Machine Works . .	4 21	
W. H. French & Co. . .	3 92	
J. F. Buckley & Co. . .	2 35	
P. Y. Hoseason . . .	2 00	

SUPPLIES.

Charles Carr . . .	71 79	
Revere Rubber Co. . .	47 50	
John P. Lovell Arms Co. .	30 35	
Page & Coffin . . .	11 38	
Parker & Wood . . .	9 84	

<i>Amounts carried forward,</i>	\$13,902 24	\$14,000 00
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<i>Amounts brought forward,</i>	\$13,902 24	\$14,000 00
A. A. Savage	8 32	
Dodge, Haley & Co.	7 50	
J. A. & W. Bird & Co.	7 50	
Walworth M'f'g Co.	7 27	
Hooper, Lewis & Co.	6 35	
B. Billings	4 89	
Henry W. Wellington	4 46	
George C. Goodwin & Co.	3 75	
Carpenter, Woodward & Morton	3 63	
S. P. Jones	3 00	
H. M. Darling & Co.	3 00	
C. H. Campbell	2 55	
Bradlee, Hastings & Co	1 89	
C. N. Allen & Co.	1 71	
Sundry small bills	6 96	

Total, as per item No. 63 of expenses	\$13,975 02
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Balance unexpended, transferred into excess and deficiency account	\$24 98
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Water Meters and Service Pipe.

Appropriation		\$3,500 00
Pay rolls of laborers	\$1,982 89	
Chadwick Lead Works, lead pipe	397 35	

REPAIRING METERS.

Union Water Meter Co.	83 25
National Meter Co.	13 30
George H. Sampson, powder	18 33
N. W. Tupper, grain and hay	127 51
J. P. Bent, hay	29 83

<i>Amounts carried forward,</i>	\$2,552 46	\$3,500 00
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EXPENSES IN DETAIL.

193

<i>Amounts brought forward,</i>	\$2,552 46	\$3,050 00
Cobb, Bates & Yerxa, oatmeal .	6 00	
J. C. Whitney, cash expenses .	5 00	
M. C. Laffie, serving summons .	7 00	
R. M. Lucas, serving summons .	4 00	

USE OF TEAMS.

Estate O. B. Leavitt . . .	7 00
A. F. Harrington . . .	6 00
Boston & Albany R. R. Co., freight	3 34

CARE SICK HORSES.

J. R. McLaughlin	5 00
Madison Bunker	4 33

BLACKSMITHING.

P. A. McVicar - . . .	73 72
Charles A. Cole	40 00
B. F. Barlow	13 02
Murray & Farrell	4 01
P. A. Murray	3 67
A. Danforth, agent . . .	3 10
Patrick B. Farrell & Co. . .	2 79
Delaney, Leland & Hewitt .	1 17

MATERIAL AND LABOR.

Alex. Griswold	17 58
Charles Carr	10 00
M. S. Hodgson	4 22
P. Y. Hoseason	4 00
C. N. Allen & Co. . . .	3 75
Robert Blair	1 75
M. C. Higgins	1 52
Willard Rand	1 25

<i>Amounts carried forward,</i>	\$2,885 68	\$3,500 00
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<i>Amounts brought forward,</i>	\$2,885 68	\$3,500 00
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SUPPLIES.

The George Woodman Co.	228 70
Walworth M'fg Co.	220 51
Sweatt & Chase	107 06
Sumner & Goodwin	22 65
Dodge, Haley & Co.	11 87
H. M. Darling & Co.	7 00
Barker & Wood	5 00
Henry W. Wellington	3 00
Chandler & Farquhar	2 08
Bradlee, Hastings & Co.	1 77
O. F. Lucas	1 24
Sundry small bills	1 50

Total, as per item No. 64 of expenses	3,498 06
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Balance unexpended, transferred into excess and deficiency account	\$1 94
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Water Rebate.

Appropriation.	\$500 00
Paid to sundry persons rebate of water bills, as per item No. 65 of expenses	293 98

Balance unexpended, transferred into excess and deficiency account	\$206 02
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Watering Streets and Water for Same.

Appropriation	\$7,500 00
Additional appropriation by or- der of City Council	6,000 00

	\$13,500 00
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<i>Amount carried forward,</i>	\$13,500 00
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Amount brought forward, \$13,500 00

WATERING.

Water department, use of water	2,100 00
H. M. Mague, Wards 2, 3 and 4	3,946 66
Timothy Stuart & Son, Wards 1 and 7	1,965 00
Thomas R. Frost, Ward 6	1,964 80
John P. Keating, Ward 5	670 33
John Joyce, Ward 1	667 83
Newton cemetery, Walnut St	24 00
Assessors department, clerical services on assessments	135 00
H. D. Woods, services on assess- ments	42 50

SUPPLIES.

Samuel Ward Co.	11 25
Asa L. Shipmans' Sons	8 80
Drew, Allis & Co., maps of Newton	2 40

Total, as per item No. 66 of expenses \$11,538 57

Balance unexpended, transferred into excess
and deficiency account \$1,961 43

Watering Troughs and Drinking Posts.

Appropriation	\$1,550 00
Water Department, use of water, watering troughs	1,186 42
Water Department, use of water, drinking posts	70 00

Amounts carried forward, \$1,256 42 \$1,550 00

<i>Amounts brought forward,</i>	\$1,256 42	\$1,550 00
Water Department, use of water fountain, Ward 2	65 29	
	<hr/>	
Total, as per item No. 67 of expenses		\$1,321 71
		<hr/>
Balance unexpended, transferred into excess and deficiency account		\$228 29

Water—Use of Hydrants.

Appropriation	\$12,840 00
Amount paid Water Department, as per item No. 68 of expenses	12,840 00

Table showing Appropriations, Transfers, Mayor's Warrants, Treasurer's Payments, Excess and Deficiency Accounts.

OBJECT OF APPROPRIATION.	Appropriations for 1891.	Transfers.	Total Appropriations.	Mayor's Warrants.	Treasurer's Payments.	Differences.	EXCESS AND DEFICIENCY ACCOUNT.	
							Overdrawn.	Unexpended.
Alms-house expenses and repairs	\$4,500 00	700 00	\$3,800 00	\$3,913 20	\$3,497 46	\$415 74	\$113 20	-
Armory expenses	1,000 00	-	1,000 00	926 27	932 67	6 40	-	73 73
Assessor's Department	10,400 00	-	10,400 00	10,081 13	9,977 10	104 03	-	318 87
Bath house	200 00	-	200 00	173 70	173 70	-	-	26 30
Books, stationery, and printing	3,300 00	-	3,300 00	3,549 92	3,869 45	319 53	49 92	-
Board of Health	5,680 00	-	5,680 00	6,301 69	6,108 76	107 07	621 69	-
Burial grounds	400 00	-	400 00	356 22	356 38	39 84	-	3 78
Burial of deceased soldiers	200 00	-	200 00	70 00	70 00	-	-	130 00
City Engineer's Department	8,635 00	1,000 00	9,635 00	9,629 67	9,668 81	33 17	-	3 33
City Hall expenses	2,300 00	-	2,300 00	2,770 33	2,814 22	43 89	470 33	-
Elections and registration of voters	3,900 00	-	3,900 00	3,482 08	3,592 59	20 51	-	417 92
Fire Department	40,612 00	-	40,612 00	41,472 81	40,750 47	722 34	869 81	-
Highways, curbing	2,500 00	-	2,500 00	2,146 54	2,146 54	-	25 20	333 46
Highways, drains and culverts	7,000 00	-	7,000 00	7,025 20	7,025 20	-	-	-
Highways, general repairs	76,202 21	-	76,202 21	64,006 70	62,396 72	1,469 98	-	12,135 51
Additional by order of City Council	1,000 00	-	1,000 00	731 03	1,057 35	326 32	-	268 97
Highways, gravel land	500 00	-	500 00	250 00	250 00	-	-	250 00
Highways, land damages	18,000 00	-	18,000 00	17,439 20	16,189 56	1,269 64	-	540 80
Highways, sidewalks, and street crossings	25,000 00	-	25,000 00	22,288 14	22,614 50	326 36	-	2,711 86
Highways, widening, reconstruction and improvements	1,000 00	-	1,000 00	821 00	831 00	10 00	-	179 00
Indigent soldiers and sailors	15,200 00	-	15,200 00	15,011 00	15,011 00	-	-	189 00
Interest on city loans, permanent	10,000 00	-	10,000 00	8,186 79	8,063 04	123 75	-	1,813 21
Interest on city loans, temporary	74,160 59	-	74,160 59	73,500 00	73,500 00	-	-	660 59
Interest on water bonds	500 00	-	500 00	500 00	500 00	-	-	-
Additional by order of City Council	7,650 00	1,000 00	6,650 00	7,806 11	7,687 62	119 09	1,156 11	-
Memorial Day	1,600 00	-	1,600 00	-	-	-	-	-
Miscellaneous expenses	1,650 00	-	1,650 00	-	-	-	-	-
Additional by order of City Council	\$11,280 00	-	\$11,280 00	13,535 80	11,792 20	1,743 51	-	444 20
Newton Free Library	2,000 00	-	2,000 00	4,600 00	4,600 00	-	-	-
Additional by order of City Council	4,600 00	-	4,600 00	1,500 00	1,500 00	-	-	-
Newton Free Library, note	1,500 00	-	1,500 00	2,071 76	2,126 76	55 00	-	528 24
Newton Cottage Hospital	\$2,000 00	-	\$2,000 00	-	-	-	-	-
Parks and squares	600 00	-	600 00	-	-	-	-	-
Additional by order of City Council	-	-	-	-	-	-	-	-

EXPENSES IN DETAIL.

Police Department	\$37,025 00	—	\$37,026 68	\$37,594 00	\$5,067 62	1 08
Pool out of almshouse	9,000 00	\$700 00	9,894 67	—	292 13	194 67
Public property	22,000 00	—	22,000 00	23,602 54	88 83	1,674 59
Additional by order of City Council	5,000 00	—	5,000 00	23,763 42	93 17	66 63
Renoval of ashes	14,925 00	150 00	15,075 00	14,890 00	35 00	35 00
Salaries	1,000 00	—	1,000 00	833 42	17 09	16 58
Schools, evening	114,881 18	900 00	115,781 18	115,777 95	—	3 23
Schools, general appropriation	—	—	—	—	—	—
Schools, by order of City Council	2,781 18	—	2,781 18	—	—	—
Additional by order of City Council	2,100 00	—	2,100 00	—	—	—
School incidentals	9,100 00	750 00	9,850 00	10,154 05	1,904 12	100 07
Additional by order of City Council	2,000 00	—	2,000 00	2,693 15	326 38	366 77
Sewerage	4,500 00	—	4,500 00	5,150 00	—	—
School note (addition to High school building)	5,150 00	—	5,150 00	29,000 00	—	—
School house note (Williams and Elliot)	29,000 00	—	29,000 00	4,000 00	—	—
Sinking fund, city debt	4,000 00	—	4,000 00	23,000 00	46 00	113 61
Sinking fund, school loan	1,000 00	—	1,000 00	886 99	8 50	43 00
Sinking fund, water bonds	1,100 00	—	1,100 00	1,057 50	69 37	717 05
Soldier's relief	25,500 00	—	25,500 00	24,782 95	—	—
State aid	12,840 00	—	12,840 00	13,975 02	98 17	24 98
Street Light Department	14,000 00	—	14,000 00	3,531 34	33 28	1 94
Use of hydrants	3,500 00	—	3,500 00	320 42	26 44	206 02
Water maintenance	500 00	—	500 00	293 98	24 00	1,961 43
Water meters and service pipe	13,500 00	—	13,500 00	11,514 57	12 53	228 29
Water rebate on bills	1,550 00	—	1,550 00	1,334 24	—	—
Watering streets and water for same	20,000 00	—	20,000 00	15,859 32	410 28	4,550 96
Additional by order of City Council	7,000 00	—	7,000 00	6,902 57	103 84	97 43
Water ring troughs and drinking posts	2,891 00	—	2,891 00	—	2,891 00	—
SPECIAL APPROPRIATIONS.						
Drains and culverts	20,000 00	—	20,000 00	15,859 32	410 28	4,550 96
Police patrol stable	7,000 00	—	7,000 00	6,902 57	103 84	97 43
Premium on sewer bonds	2,891 00	—	2,891 00	—	2,891 00	—
Less Mayor's warrants of 1890 paid by Treasurer in 1891	\$726,681 98	—	\$726,681 98	\$608,265 62	\$9,378 76	\$29,216 39
Less on account of Chatlin school house	—	—	—	21,718 18	4,873 82	5,534 97
Amount of Mayor's warrants for 1891 paid by Treasurer in 1892 appropriations	—	—	—	\$676,577 44	—	—
Transferred into treasury	\$726,681 98	—	\$726,681 98	26,423 12	\$4,704 94	\$23,681 42

SCHEDULE OF CITY PROPERTY, REAL AND PERSONAL.

Almshouse Department.

Seventy acres of land . . .	\$40,090 00	
Buildings	5,000 00	
Personal property	3,947 35	
Twenty four acres of land on Winchester street	8,600 00	
		<hr/>
		\$57,547 35

Armory Hall.

Land, building, fixtures, etc.	\$12,000 00
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City Hall Department.

City Hall, furniture and fixtures	\$50,000 00	
City seal	25 00	
City stamps	35 00	
Reports, statistics, and special laws	300 00	
Set of standard weights and measures	100 00	
Record books	200 00	
Book-cases, maps, etc.	500 00	
		<hr/>
		51,160 00

Cemetery Department.

Land in Newton Cemetery . . .	\$5,500 00	
Tomb in Newton Cemetery . . .	800 00	
		<hr/>
		6,300 00

<i>Amount carried forward,</i>	<hr/>	\$127,007 25
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Amount brought forward, \$127,007 25

City Engineering Department.

Two transits, \$240 each . . .	\$480 00
Two transits, \$200 each . . .	400 00
Two transits, \$150 each . . .	300 00
Two levels, \$140 each . . .	280 00
Two levels, \$100 each . . .	200 00
Draughting materials . . .	126 00
Surveying materials . . .	48 00
Tools	50 00
Horses, wagons, etc. . . .	600 00
Cases and furniture	300 00

2,784 00

Fire Department.

Steam fire engine No. 1, apparatus, horses, and furniture . .	\$3,500 00
Steam fire engine No. 2, apparatus, horses and furniture . .	3,500 00
Steam fire engine No. 3, apparatus, horses and furniture . .	6,000 00
Chemical engine No. 1	2,250 00
Chemical engine B	2,000 00
Aerial truck, horses, etc. . . .	4,800 00
Hook and ladder truck, horses, etc.	3,300 00
Hose No. 4, horse, hose, reel, etc., Newtonville	1,200 00
Hose No. 5, horse, hose, reel etc., Auburndale	1,200 00
Hose No. 6, horse, hose, reel, etc., Lower Falls	1,500 00

Amounts carried forward, \$29,250 00 \$129,791 35

<i>Amounts brought forward,</i>	\$29,250 00	\$129,791 35
Hose No. 7, hose-carriage, horse, hose, etc., Upper Falls	1,100 00	
Fire alarm telegraph, including team, etc.	26,800 00	
	<hr/>	\$57,150 00

Fire and Highway Department Buildings.

Steam fire engine house, stables and land, Ward 7	13,000 00	
Steam fire-engine house, stables and land, Ward 3	19,000 00	
Steam fire-engine house, stable and land, Ward 6	19,000 00	
Hook and ladder and hose No. 4, house, stables and land	17,500 00	
Hose station No. 5, stables and land, Auburndale	5,200 00	
Hose station No. 6, stables and land, Lower Falls	6,900 00	
Hose station No. 7, stables and land, Upper Falls	7,000 00	
Engine house, stables and land, Newton Highlands	16,000 00	
	<hr/>	103,600 00

Free Library Department.

Newton Free Library, building and land	68,000 00	
Books	10,000 00	
	<hr/>	\$78,000 00
<i>Amount carried forward,</i>		<hr/> \$368,541 35

Amount brought forward,

\$368,541 35

Gravel and Gravel Land.

Land on California street, Ward 1	\$6,600 00
Land on Crafts street, Ward 2	500 00
Land on Watertown street, Ward 2	1,000 00
Land on Auburdale avenue, Ward 3	1,200 00
Land on Pine street, Ward 3 .	2,550 00
Land on Pine street, Ward 3 .	2,000 00
Land on Pine street, Ward 3 .	2 000 00
Land on Pine street, Ward 3 .	1,200 00
Land on Pine street, Ward 3 .	250 00
Land on Pine street, Ward 3 .	550 00
Land on Pine street Ward 3 .	200 00
Land on Bourne street, Ward 4	9,000 00
Gravel on Washington street, Ward 4	600 00
Gravel on Washington street, Ward 4	600 00
Land on Eliot street, Ward 5 .	1,000 00
Gravel on Parker street, Ward 5	100 00
Gravel on Pine street	200 00
Land east of Oak street, Ward 5	1,200 00
Land on Willow and Centre streets, Ward 6	500 00
Land on Florence street, Ward 5	2,100 00
Land on Florence street, Ward 5	2,000 00
Land on Homer street, Ward 6	4,000 00
Land on Murray street, Ward 2	4,000 00

 43,350 00
Amount carried forward,

 \$411,891 35

Amount brought forward, \$411,891 35

Highway Department.

1 steam road roller . . .	\$2,000 00
35 cart horses, \$200 . . .	7,000 00
2 horses, carriages, sleigh, harness, etc., for superintendent of streets	800 00
29 double and single carts . .	2,900 00
43 harnesses	860 00
4 double sleds, \$200	800 00
9 single sleds	270 00
2 stone crushers, engine, and houses	4,600 00
3 stone wagons, wagon, carriage and sleigh	500 00
Tools, chains, derricks, blankets, etc.	2,000 00
1 road scraper	7,500 00
Boiler for steam drill	400 00
Engineers house, Murray St. . .	1,200 00

30,830 00

Lighting Department.

For 1,369 posts, lanterns, burners, etc., \$10 apiece	\$13,690 00
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Police Department.

Station house, building, and land, North Village	\$4,000 00
Furniture and bedding	50 00
Lock-up, furniture and bedding, Ward 1	1,050 00

Amounts carried forward, \$5,100 00 \$456,411 35

<i>Amounts brought forward,</i>	\$5,100 00	\$456,411 35
Lock-up, furniture and bedding.		
Ward 6	1,575 00	
Carriage and sleigh	150 00	
Horse, saddle, bridle and harness	250 00	
34 pairs hand-cuffs, \$3.75	127 50	
34 clubs, \$1.50	51 00	
33 revolvers	313 50	
33 badges	185 63	
35 belts	87 50	
35 billies	35 00	
Buttons	50 00	
Blankets	50 00	
Record books	50 00	
Furniture in station at City Hall	175 00	
Land, stable, etc.	9,000 00	
Patrol signal system, including two horses, harness, etc., patrol wagon and pung	7,000 00	
		24,200 13

School Department.

High School buildings, furniture and land	113,000 00	
Mason school house, furniture and land	49,100 00	
Hyde school house, furniture and land	24,500 00	
Prospect grammar school house, furniture and land	31,000 00	
Oak Hill school house, furniture and land	12,000 00	
<i>Amounts carried forward,</i>	\$206,100 00	\$480,611 48

<i>Amounts brought forward,</i>	\$206,100 00	\$480,611 48
Hamilton school house, furniture and land	28,000 00	
Williams school house, furniture and land	10,000 00	
Williams new school house and land	35,000 00	
Peirce school house, furniture land	32,000 00	
Davis school house, furniture land	13,000 00	
Franklin school house, furniture and land	15,000 00	
Claffin school house, furniture and land	35,000 00	
Claffin new school house . . .	31,500 00	
Adams school house, furniture and land	22,500 00	
Bigelow school house, furniture and land	44,000 00	
Underwood school house, furni- ture and land	24,000 00	
Lincoln school house, furniture and land	5,500 00	
Jackson school house, furniture and land	15,000 00	
Eliot school house, furniture and land	19,000 00	
Rice school house and land . .	20,000 00	
Barnard school house, furniture and land	21,000 00	
Thompsonville school house, fur- niture and land	5,000 00	
<i>Amounts carried forward,</i>	\$581,600 00	\$480,611 48

<i>Amounts brought forward,</i>	\$581,600 00	\$480,611 48
Prospect primary school house,		
furniture and land	7,500 00	
Waban school house, furniture		
and land	17,000 00	
	<hr/>	\$629,600 00

Water Department.

Building for pipe-fitting, etc., stable and land	\$4,000 00
5 horses, wagons, harness, etc.	800 00
	<hr/>
	\$1,115,011 48

For cost of water works, see water construction account.

TABLE

Showing Amount Paid for Support of Poor out of Almshouse from 1851 to 1891 inclusive.

1851 . . .	\$38 56	1872 . . .	2,884 79
1852 . . .	101 94	1873 . . .	3,066 59
1853 . . .	45 70	1874 . . .	3,895 51
1854 . . .	38 10	1875 . . .	5,553 79
1855 . . .	73 63	1876 . . .	9,336 14
1856 . . .	135 49	1877 . . .	10,259 57
1857 . . .	204 96	1878 . . .	8,284 10
1858 . . .	387 61	1879 . . .	8,246 42
1859 . . .	358 25	1880 . . .	6,455 80
1860 . . .	500 81	1881 . . .	6,808 75
1861 . . .	757 14	1882 . . .	7,933 57
1862 . . .	781 50	1883 . . .	8,016 14
1863 . . .	632 27	1884 . . .	7,076 86
1864 . . .	605 02	1885 . . .	8,500 15
1865 . . .	870 77	1886 . . .	7,661 96
1866 . . .	643 72	1887 . . .	8,269 41
1867 . . .	1,268 08	1888 . . .	9,155 74
1868 . . .	1,464 53	1889 . . .	8,371 73
1869 . . .	2,019 28	1890 . . .	9,277 42
1870 . . .	2,197 41	1891 . . .	9,894 67
1871 . . .	\$3,713 39		

SALARIES OF CITY OFFICERS, 1891.

Mayor	\$1,000 00
City Clerk	2,000 00
Assistant City Clerk	1,000 00
City Treasurer and Collector	3,000 00
Assistant Treasurer and Deputy Collector	1,800 00
City Auditor	2,200 00

Assistant to City Auditor	850 00
City Solicitor	\$1,250 00
One Assessor, who is also Clerk of the Board	1,500 00
Two Assessors, each	900 00
Assistant Assessors, each per day	4 00
City Messenger	1,200 00
Clerk of Common Council	200 00
Scaler of Weights and Measures	75 00
Milk Inspector	250 00

HIGHWAY DEPARTMENT.

Superintendent of Streets, two horses and carriage furnished	\$2,500 00
City Engineer	2,500 00

FIRE DEPARTMENT.

Chief of Department, team furnished	\$1,700 00
Assistant Chief and Superintendent of Fire Alarm Telegraph, team furnished	1,500 00
Three engineers of steamers, each	1,000 00
Four drivers of steamers and hook and ladder company, each	800 00
Six drivers of hose-carriages Nos. 1, 2, 3, 4, 5, and 6, each	650 00
One driver Hose 7	325 00
Three stokers, each	100 00
Eight foremen of steamers, hook and ladder and hose company, each	110 00
Eight assistant foremen and clerks of steamers and hook and ladder and hose Co., each	105 00
Forty hosemen and laddermen, each	100 00

POLICE DEPARTMENT.

City Marshal, team furnished	\$1,700 00
Captain of police	1,300 00
Sergeant of police	1,200 00
An Inspector	1,200 00
Twenty-eight patrolmen, each	1,000 00

POOR DEPARTMENT.

Seven Overseers of Poor, each	\$50 00
City Almoner and Clerk of Board	1,200 00
Warden of Almshouse	700 00

WATER DEPARTMENT.

Water Registrar	\$2,100 00
Superintendent of Water Works, team furnished	1,700 00
Clerk	728 00
Engineer at pumping station, with house rent	1,200 00
Fireman and watchman, pumping station, with house rent	600 00

SCHOOLS.

Superintendent	\$3,500 00
One teacher	3,000 00
Two teachers, at \$2,200	4,400 00
Five teachers, at \$2,000	10,000 00
Seven teachers, at \$1,900	13,300 00
One teacher	1,500 00
One teacher	1,200 00
Seven teachers, at \$1,000	7,000 00
Two teachers, at \$900	1,800 00
Seventeen teachers, at \$700	11,900 00

Fifty-nine teachers, at \$620	36,580 00
Four teachers, at \$550	2,200 00
Two teachers, at \$500	1,000 00
One teacher	750 00
Two teachers, at \$480	960 00
One teacher	400 00
One teacher	240 00
Secretary of School Committee	500 00

JANITORS.

One janitor	\$768 00
One janitor	732 00
One janitor	624 00
One janitor	600 00
One janitor	588 00
One janitor	576 00
One janitor	540 00
One janitor	372 00
Three janitors, at \$360	1,080 00
Four janitors, at \$300	1,200 00
Three janitors, at \$144	432 00
One janitor	96 00

LIBRARY.

Librarian	\$1,000 00
Assistant librarian	500 00
Four assistants	1,800 00
Janitor	800 00

CITY OF NEWTON, ASSESSORS' OFFICE, {
CITY HALL, WEST NEWTON, April 25, 1892. }

To the City Council:

I have herewith to present the report of the Assessors
for the year 1891.

For the Board,

CHARLES A. MINER.

Clerk.

ASSESSORS' REPORT.

Taxable Valuation of Real and Personal Estate.

Real estate	\$28,013,675 00
Personal estate	9,474,485 00
	<hr/>
	\$37,488,160 00
Corporation stocks	\$4,900,890 00
Bank stocks	1,003,448 00
	<hr/>
	\$43,392,498 00

Appropriations.

City, for current expenses	\$717,278 51
Deduct orders approved and paid \$39,306 51	
Deduct estimated receipts for 1891	160,850 00
	<hr/>
	\$517,122 00
For state tax	25,545 00
For county tax	27,421 81
For overlay	6,009 09
	<hr/>
Total assessment for 1891	\$576,097 90

**Table of Aggregates of Property, Polls, Taxes, etc., as
Assessed May 1, 1891.**

Value of As- sessed Personal Estate.	Value of Assessed Real Estate.	Total Valuation of Assessed Estate May 1, 1891.	Tax for State, County, and City or Town Purposes, including Overlayings.
Excluding Resident Bank Stock.	Buildings, excluding Land,		On Personal Estate.
\$9,322,301 00	\$14,688,615	\$37,488,160	\$142,117 27
Resident Bank Stock.	Land, excluding Build- ings.	Rate of Total Tax per \$1,000.	On Real Estate.
\$152,184	\$13,325,060		\$420,205 13
			On Polls.
			\$13,775.50
TOTAL.	TOTAL.		TOTAL.
\$9,474,485	\$28,013,675	\$15,00	\$576,097.90

Number of Residents As- sessed on Property.	Number of Non- Residents Assessed on Property.	Number of Persons Assessed.	Number of Polls Assessed.
Individuals.	Individuals.	On Property.	Male.
4,025	768	5,164	6,878
All others.	All others.	For Poll Tax only.	Female.
258	113	4,637	35
TOTAL.	TOTAL.	TOTAL.	
4,283	881	9,801	

TABLE showing the Number of Polls, Real and Personal Estate of the City, Amount of Tax, Rate per cent., Appropriations, etc., for Thirty-one Years.

A. D.	Polls.	Real Estate.	Personal.	Total.	City, State and County Tax.	Rate.	Appropriations	Houses.
1861	2,056	\$5,644,285 00	\$1,955,835 00	\$7,600,120 00	\$57,804 88	\$7 20	\$47,500 00	1,330
1862	1,989	5,476,805 00	2,405,821 00	7,922,626 00	56,569 17	6 60	35,000 00	1,374
1863	1,911	5,504,367 00	2,988,195 00	8,492,562 00	64,968 65	7 20	40,000 00	1,399
1864	2,046	5,637,755 00	2,309,021 00	7,946,776 00	78,000 55	9 50	52,500 00	1,421
1865	2,118	5,756,185 00	3,390,075 00	9,146,260 00	113,991 12	12 00	60,000 00	1,438
1866	2,297	6,394,835 00	4,500,724 00	10,955,559 00	114,149 59	10 00	75,000 00	1,491
1867	2,438	7,227,285 00	4,905,127 00	12,222,412 00	153,990 88	12 20	95,000 00	1,552
1868	2,736	9,104,567 00	5,366,602 00	14,441,169 00	193,208 88	13 00	160,000 00	1,671
1869	2,937	10,288,610 00	5,634,266 00	15,922,876 00	188,600 46	11 50	150,000 00	1,826
1870	3,055	11,407,070 00	6,330,922 00	17,737,992 00	222,515 71	12 20	185,000 00	2,077
1871	3,199	12,770,420 00	6,615,363 00	19,386,013 00	223,821 32	11 20	185,000 00	2,220
1872	3,420	13,792,950 00	8,463,904 00	22,256,854 00	334,314 87	13 50	291,050 00	2,392
1873	3,659	18,446,275 00	7,537,775 00	25,984,050 00	384,089 84	14 50	333,300 00	2,523
1874	3,917	20,032,800 00	8,048,645 00	28,081,445 00	372,863 53	13 00	320,000 00	2,657
1875	4,089	21,073,495 00	7,882,347 00	28,955,869 00	399,085 46	13 50	351,000 00	2,876
1876	4,234	21,128,120 00	7,072,845 00	28,200,965 00	392,201 13	13 60	350,004 99	3,004
1877	4,045	20,007,025 00	6,627,488 00	26,634,513 00	370,319 38	13 80	402,200 00	3,057
1878	3,882	18,004,105 00	6,408,825 00	24,412,930 00	352,942 43	13 60	378,400 00	3,150
1879	4,010	17,456,655 00	6,830,697 00	24,287,352 00	326,959 64	13 40	367,850 00	3,178
1880	4,132	17,718,270 00	7,481,880 00	25,200,150 00	361,137 40	14 00	388,525 00	3,214
1881	4,236	18,238,510 00	8,169,763 00	26,408,273 00	379,434 18	14 00	416,505 00	3,257
1882	4,502	18,930,485 00	7,405,233 00	26,335,718 00	383,633 00	14 20	423,930 00	3,310
1883	4,661	19,784,805 00	7,329,283 00	27,124,088 00	427,033 59	15 40	488,120 00	3,381
1884	4,804	20,467,285 00	7,347,266 00	27,814,551 00	410,137 68	14 00	478,306 88	3,468
1885	4,984	21,134,820 00	7,865,000 00	28,999,820 00	415,965 48	14 00	473,490 00	3,542
1886	5,200	21,977,061 00	9,039,869 00	31,016,930 00	457,051 28	14 40	524,420 00	3,695
1887	5,671	23,080,806 00	9,196,441 00	32,277,247 00	511,613 38	15 80	562,080 00	3,866
1888	5,870	24,132,630 00	9,146,012 00	33,278,642 00	517,591 35	15 20	571,739 00	4,018
1889	6,185	25,390,300 00	9,264,372 00	34,654,672 00	550,490 19	14 80	624,124 00	4,200
1890	6,565	26,640,500 00	9,518,525 00	36,159,025 00	573,954 57	14 60	646,033 81	4,379
1891	6,879	28,013,675 00	9,474,456 00	37,488,130 00	576,097 90	15 00	717,278 51	4,590

REPORT OF CITY CLERK.

OFFICERS

OF THE

NEWTON CITY GOVERNMENT,

1891.

MAYOR.

HERMON E. HIBBARD.

Office Hour at City Hall:

4.15 P. M. Daily.

BOARD OF ALDERMEN.

President, WILLIAM F. HARBACH

WARD ONE.

LEWIS E. COFFIN.

WARD THREE.

ARTHUR F. LUKE.

WARD FIVE.

ELLIOT J. HYDE.

WARD TWO.

JOHN A. FENNO.

WARD FOUR.

FREDERIC M. CREHORE.

WARD SIX.

WILLIAM F. HARBACH.

WARD SEVEN.

SAMUEL A. D. SHEPPARD.

STANDING COMMITTEES, BOARD OF ALDERMEN.**Committee on Elections and Returns.**

ALDERMEN.

LEWIS E. COFFIN.

ELLIOT J. HYDE.

Committee on Enrolled Ordinances and Resolutions.

ALDERMEN.

JOHN A. FENNO.

LEWIS E. COFFIN.

STANDING COMMITTEES, BOARD OF MAYOR AND ALDERMEN.**Committee on Police.**

THE MAYOR,

ALDERMEN.

ARTHUR F. LUKE.

FREDERIC M. CREHORE.

Committee on Licenses, Weights and Measures.

ALDERMEN.

ELLIOTT J. HYDE.

SAMUEL A. D. SHEPPARD.

Regular meetings of the Board, first and third Mondays of each month
at 7.15 P. M.

Clerk of Board.

ISAAC F. KINGSBURY.

COMMON COUNCIL.*President,* GEORGE A. MEAD.

WARD ONE.

REUBEN FORKNALL.

WILLIAM F. GRACE.

WARD THREE.

FRANCIS M. DUTCH.

EDWARD S. MERCHANT.

WARD FIVE.

EDWARD L. COLLINS.

ERASTUS MOULTON.

WARD TWO.

GEORGE F. CHURCHILL.

GEORGE A. MEAD.

WARD FOUR.

ALLEN JORDAN.

CHARLES H. SPRAGUE.

WARD SIX.

GEORGE F. RICHARDSON.

ALBERT H. ROFFE.

WARD SEVEN.

HENRY E. BOHTFELD.

GEORGE M. WEED.

STANDING COMMITTEE OF COMMON COUNCIL.**Committee on Enrolled Ordinances and Resolutions.**

COUNCILMEN.

CHARLES H. SPRAGUE.

ALBERT H. ROFFE.

GEORGE M. WEED.

Regular meetings of the Common Council, second and fourth Mondays of each month, 7.15 P. M.

Clerk.

JOHN C. BRIMBLECOM.

JOINT STANDING COMMITTEES, CITY COUNCIL.**Committee on Finance and Salaries.**

ALDERMEN.

ARTHUR F. LUKE.

JOHN A. FENNO.

COUNCILMEN.

President, GEORGE A. MEAD.

EDWARD S. MERCHANT.

EDWARD L. COLLINS.

Committee on Accounts.

ALDERMEN.

SAMUEL A. D. SHEPPARD.

FREDERIC M. CREHORE.

COUNCILMEN.

FRANCIS M. DUTCH.

EDWARD S. MERCHANT.

CHARLES H. SPRAGUE.

Committee on Public Property.

ALDERMEN.

ELLIOTT J. HYDE.

SAMUEL A. D. SHEPPARD.

COUNCILMEN.

ALBERT H. ROFFE.

ALLEN JORDAN.

WILLIAM F. GRACE.

Committee on State Aid, Soldiers' Relief and Military Affairs.

ALDERMEN.

ELLIOTT J. HYDE.

ARTHUR F. LUKE.

COUNCILMEN.

ALBERT H. ROFFE.

ERASTUS MOULTON.

CHARLES H. SPRAGUE.

Committee on Fuel and Street Lights.

ALDERMEN.

JOHN A. FENNO.

SAMUEL A. D. SHEPPARD.

COUNCILMEN.

EDWARD S. MERCHANT.

CHARLES H. SPRAGUE.

HENRY E. BOTHFELD.

Committee on Fire Department.

ALDERMEN.

FREDERIC M. CREHORE.

ARTHUR F. LUKE.

COUNCILMEN.

GEORGE F. RICHARDSON.

ERASTUS MOULTON.

GEORGE F. CHURCHILL.

Committee on Highways.

ALDERMEN.

JOHN A. FENNO.

FREDERIC M. CREHORE.

ARTHUR F. LUKE.

COUNCILMEN.

EDWARD L. COLLINS.

GEORGE F. RICHARDSON.

HENRY E. BOTHFELD.

WILLIAM F. GRACE.

Committee on Printing.

ALDERMAN.

SAMUEL A. D. SHEPPARD.

COUNCILMEN.

GEORGE M. WEED.

ALLEN JORDAN.

Committee on Ordinances.

ALDERMEN.

ELLIOTT J. HYDE.

FREDERIC M. CREHORE.

COUNCILMEN.

EDWARD L. COLLINS.

FRANCIS M. DUTCH.

GEORGE M. WEED.

Committee on Claims.

ALDERMEN.

SAMUEL A. D. SHEPPARD.

ARTHUR F. LUKE.

COUNCILMEN.

President, GEORGE A. MEAD.

GEORGE F. RICHARDSON.

FRANCIS M. DUTCH.

Committee on Almshouse and Poor.

ALDERMAN.

FREDERIC M. CREHORE.

COUNCILMEN.

ALBERT H. ROFFE.

GEORGE F. CHURCHILL.

Committee on Assessors' Department.

ALDERMAN.

WILLIAM F. HARBACH.

COUNCILMEN.

EDWARD L. COLLINS.

GEORGE F. RICHARDSON.

Committee on Parks, Squares, and Burial Grounds.

ALDERMEN.

WILLIAM F. HARBACH.

FREDERIC M. CREHORE.

COUNCILMEN.

ERASTUS MOULTON.

ALBERT H. ROFFE.

GEORGE M. WEED.

Sewers.

ALDERMEN.

WILLIAM F. HARBACH

LEWIS E. COFFIN.

COUNCILMEN.

GEORGE A. MEAD.

EDWARD S. MERCHANT.

HENRY E. BOTHFIELD.

JOINT SELECT COMMITTEES.**Rules and Orders.**

ALDERMEN.

LEWIS E. COFFIN.

JOHN A. FENNO.

COUNCILMEN.

CHARLES H. SPRAGUE.

GEORGE M. WEED.

WILLIAM F. GRACE

Read Fund.

ALDERMEN.

LEWIS E. COFFIN.

SAMUEL A. D. SHEPPARD.

COUNCILMEN.

REUBEN FORKNALL.

HENRY E. BOTHFIELD.

WILLIAM F. GRACE.

GEORGE M. WEED.

Clerk of Committees.

BENJAMIN F. OTIS.

Highway Surveyors.

ALDERMEN.

JOHN A. FENNO.

FREDERIC M. CREHORE.

ARTHUR F. LUKE.

COUNCILMEN.

EDWARD L. COLLINS.

GEORGE F. RICHARDSON.

HENRY E. BOTHFIELD.

WILLIAM F. GRACE.

SCHOOL COMMITTEE.

Ward 1.	J. EDWARD HOLLIS,	Term expires, January, 1892.
" 1	CHARLES A. DREW,	" " 1892.
" 2	RUFUS A. WHITE,	" " 1892.
" 2	MARY R. MARTIN,	" " 1892.
" 3	LAWRENCE BOND,	" " 1894.
" 3	ABBY E. DAVIS,	" " 1894.
" 4	H. USHER MONRO,	" " 1894.

Ward 4.	COLON S. OBER,	Term expires, January, 1894.
"	5. ALBERT B. PUTNEY,	" " 1893.
"	5. FRANK J. HALE,	" " 1893.
"	6. ALBERT L. HARWOOD,	" " 1893.
"	6. AMOS E. LAWRENCE,	" " 1893.
"	7. GEORGE C. TRAVIS,	" " 1893.
"	7. FRANCIS B. HORN BROOKE,	" " 1894.

Superintendent of Schools.

JOSEPH C. JONES.

Secretary, MRS. MARY E. SHERWOOD

Office at High School.

TRUSTEES OF NEWTON FREE LIBRARY.

EDWIN B. HASKELL, *President.*

Alderman, LEWIS E. COFFIN.	Councilman, GEORGE F. CHURCHILL.
JULIUS L. CLARKE.	WILLIAM CLAFLIN.
A. LAWRENCE EDMANDS.	JOSEPH R. LEESON.

Meetings, first Tuesday in each month, 7 o'clock P. M.

BOARD OF HEALTH.

THE MAYOR, *ex-officio.*

OTIS PETTEE, *president.*

Alderman, SAMUEL A. D. SHEPPARD.	DAVID E. BAKER, M. D.
Councilman, ALLEN JORDAN.	EDMUND T. WISWALL.

Clerk and Agent of Board, including Inspection of Plumbing.

WILLIAM S. FRENCH.

Agent for Issue of Burial Permits.

ISAAC F. KINGSBURY.

Meetings, first and third Tuesdays in each month, 4.20 P. M.

WATER BOARD.

WILLIAM P. ELLISON, *President.*

Alderman, WILLIAM F. HARBACH.	Councilman, GEORGE F. CHURCHILL.
EDMUND T. WISWALL.	LEVI C. WADE.*

J. CLIFTON WHITNEY, *Clerk.*

*Died March 21, 1891. Adams K. Tolman, appointed April 6, 1891, to fill vacancy.

SINKING FUND COMMISSIONERS AND TRUSTEES OF THE READ FUND.

GEORGE S. BULLENS. GEORGE C. LORD. ALDEN SPEARE.

CITY SOLICITOR.

WINFIELD S. SLOCUM (Newtonville).

ASSESSORS.

SAMUEL M. JACKSON, *Chairman*.

Term expires, January, 1894.

HOWARD B. COFFIN.

CHARLES A. MINER, *Clerk*.

Term expires, January, 1893.

Term expires, January, 1892.

Assistant Assessors.

WARD 1.

WARD 2.

WARD 3.

THOMAS C. PARKS. ALBERT A. SAVAGE. WILLARD P. PLIMPTON.

WARD 4.

WARD 5.

WARD 6.

BERNARD EARLY.

OTIS PETTEE.

GEORGE WARREN.

WARD 7.

EDWARD W. COBB.

REGISTRARS OF VOTERS.

GEORGE E. BRIDGES, *Chairman*.

Term expires, May, 1894.

GEORGE H. BOURNE.

AMOS L. HALE.

Term expires, May, 1893.

Term expires, May, 1892.

ISAAC F. KINGSBURY, *Clerk*.

OVERSEERS OF POOR.

THE MAYOR, *ex-officio*.

WARD 1.

WARD 2.

WARD 3.

WILLIE M. RUSSELL.

JOHN F. PAYNE.

ANDREW J. FISKE.

WARD 4.

WARD 5.

WARD 6.

NATHAN MOSMAN, *Clerk*. EUGENE FANNING. GEORGE WARREN.

WARD 7.

HENRY C. DANIELS.

Meetings first Thursday in each month, 3.45 P. M.

CIVIL SERVICE EXAMINERS.LUCIUS G. PRATT, *Chairman.*

DWIGHT CHESTER.

FRED L. THAYER, M. D.

POLICE DEPARTMENT.CHARLES F. RICHARDSON, *City Marshal.*CHARLES E. DAVIS, *Captain of Police.*CHARLES P. HUESTIS, *Sergeant of Police.*JOHN RYAN, *Sergeant of Police.*JAMES D. HENTHORNE, *Inspector of Police.***Patrolmen.**

CHARLES T. BARTLETT,
ROBERT W. BLUE,
NOAH F. BOSWORTH,
WILLIAM G. BOSWORTH,
BERNARD F. BURKE,
THOMAS C. CLAY,
JOHN W. CONROY,
RICHARD B. CONROY,
CHARLES O. DAVIS,
JOHN J. DAVIS,
JOHN E. DUGAN,
FRANK B. FLETCHER,
AMBROSE M. FULLER,

WM. O. HARLOW,
ROBERT S. HARRISON,
EDSON C. HOLMES,
WILLIAM A. LEONARD,
AURELIUS F. G. LIBBY,*
FREDERICK M. MITCHELL,
RUFUS H. MOULTON,
MARTIN J. NEAGLE,
JOHN PURCILL,
JOHN W. QUILTY,
JOSHUA H. SEAVER,
GUY S. SHANNON,
WILLIAM P. SOULE,

RICHARD T. TAFTE.

ELECTION OFFICERS, 1891.

See item of Expenses Election and Registration of Voters.

OFFICERS AT CITY HALL.

P. O. Address, West Newton, Mass.

City Clerk, ISAAC F. KINGSBURY.

Assistant City Clerk, JOHN C. BRIMBLECOM.

City Treasurer and Collector of Taxes, JOHN A. KENRICK.

*Resigned, October 6, 1891.

CITY CLERK'S REPORT.

Deputy Collector of Taxes, Moses Clark, Jr.

Auditor, Benjamin F. Otis.

Clerk, Theo. A. Fleu.

City Engineer, Albert F. Noyes.

Assistant, Fred. H. Barnes.

Assessor and Clerk of Board, Charles A. Miner.

Water Registrar, J. Clifton Whitney.

Clerk, Miss E. D. Hinckley.

City Almoner, Clerk of Overseers of Poor, Nathan Mosman.

City Messenger, J. D. Wellington.

City Marshal, Charles F. Richardson.

OFFICE HOURS :

8.15 A. M. to 12.30 P. M., 2 to 5 P. M.

Except Saturdays, when the hours are from 8.15 A. M. to 1 P. M.

Chief of Fire Department, Henry L. Bixby.

Hours at City Hall, 2 to 5 P. M.

Superintendent of Streets, Charles W. Ross.

Hours at City Hall, 11.30 A. M. to 12 M., 4.30 to 5 P. M.

Superintendent of Water Works, H. N. Hyde, Jr.

Office at Pipe Yard, Austin Street, Newtonville.

Agent Board of Health, William S. French.

Hours at City Hall, 8.15 to 10.15 A. M.

MARRIAGES REGISTERED, 1891.

January	24	August	14
February	25	September	33
March	11	October	52
April	21	November	37
May	23	December	27
June	26		—
July	21	Total	314

Birthplaces of the Above Contracting Parties.

	Groom.	Bride.
United States	176	154
Ireland	51	68
Canada	59	63
England	21	20
Scotland	4	3
Sweden	1	3
Germany	2	1
Wales	0	2
Totals	314	314
American	176	154
Foreign	138	160
Totals	314	314

BIRTHS REGISTERED IN 1891.

WARDS.	1		2		3		4		5		6		7		Total.		Aggre- gate
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
January	6	4	8	7	4	4	3	2	4	3	3	5	-	4	28	25	53
February	2	6	7	4	2	5	-	4	4	4	2	2	-	2	19	29	48
March	6	2	6	5	4	8	3	5	4	2	2	2	-	4	26	26	52
April	4	2	8	4	-	3	1	5	2	5	4	4	1	1	18	25	43
May	4	3	3	7	4	6	4	3	2	2	3	3	2	2	22	23	45
June	8	2	6	5	2	6	1	-	3	2	4	6	3	1	26	25	51
July	5	3	6	4	6	3	5	6	3	3	3	3	1	1	32	19	51
August	6	7	8	4	6	4	6	3	6	6	4	6	-	-	30	33	63
September	7	8	9	4	2	2	3	6	6	5	4	7	3	2	38	34	72
October	3	4	7	7	5	3	5	3	4	4	4	3	-	2	27	26	53
November	3	5	6	6	4	4	2	1	3	3	4	9	-	2	22	28	50
December	8	4	7	5	2	1	2	9	3	2	1	4	1	-	24	25	49
Totals	62	49	84	66	38	49	35	47	45	38	38	54	10	15	312	318	630
Aggregate.	111		150		87		82		83		92		25		630		

Birthplace of Parents.

	Fathers.	Mothers.
United States	301	283
England	33	32
Ireland	162	190
Scotland	10	11
Canada	32	22
New Brunswick	18	21
Nova Scotia	51	53
Prince Edward Island	8	4
Newfoundland	1	3
Germany	6	6
Sweden	3	2
Holland	1	1
Feejee Islands	1	0
France	1	0
Africa	1	0
Denmark	1	1
South America	0	1
Totals	630	630
American born	301	283
Foreign born	329	347
Totals	630	630

Statement of Deaths by Months in each Ward.

WARDS.	1		2		3		4		5		6		7		TOTAL.		Aggre- gate.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
January .	1	..	5	2	2	3	..	3	1	3	4	4	..	3	13	18	31
February	3	..	1	1	..	3	2	3	2	3	3	1	..	..	11	10	21
March .	2	6	1	4	1	3	4	2	6	..	3	3	2	..	19	18	37
April .	2	3	2	2	4	..	2	5	..	5	2	1	1	3	13	23	36
May .	1	2	..	..	1	..	..	4	3	2	2	..	1	1	8	15	23
June .	2	..	..	4	..	2	1	4	1	2	..	1	..	3	4	13	17
July .	1	4	2	4	5	1	3	7	2	3	5	1	..	..	18	20	38
August .	1	3	5	6	2	2	3	2	5	1	2	1	1	2	19	17	36
September	4	1	3	3	4	3	6	2	1	..	2	2	2	..	22	11	33
October	1	..	7	2	..	2	4	1	3	2	3	3	1	..	19	11	30
November	1	5	2	3	3	3	4	2	1	2	1	3	1	1	13	19	32
December	4	2	3	5	2	2	4	5	5	2	1	2	1	1	20	19	39
Totals .	23	26	31	46	24	24	33	36	30	25	28	22	10	15	179	194	373
Aggregate .	49	77	77	48	69	55	50	25	373								

Birthplace of Parents of Above Deceased Persons.

	Fathers.	Mothers.
United States	183	178
Ireland	112	118
Canada	36	36
England	11	15
Scotland	8	2
Sweden	2	2
Germany	2	1
Italy	1	1
Sandwich Islands	0	1
Switzerland	0	1
Wales	0	1
Unknown	18	7
Totals	354	354
American	183	178
Foreign	171	178
Unknown	18	17
Totals	373	373

OFFICE FEES.

Dr.

Account, assignment of . . .	\$3 00
Attachment	25
Bills of sale	2 50
Church, incorporation of . .	1 75
Claim, assignment of . . .	25
Fence Viewers, assignment of .	50
Foreclosure of Pledge . . .	50
Income, assignment of . . .	50
Licenses, auctioneer . . .	26 00
billiard table	12 00
bowling alley	24 00
exhibition	2 00
hackney carriage	31 00
innholder	4 00
intelligence office . . .	14 00
junk	50 00
liquor, 6th class	21 00
marriage	148 00
pool table	16 00
rifle gallery	4 00
street musicians	4 00
wagon	44 50
Mortgages	80 50
Mortgages, assignment of . .	25
Mortgages, discharge of . .	4 00
Naturalization certificates .	9 50
Trustee, assignment of . . .	1 25
Wages, assignment of	5 75
Wages, assignment of, discharged	75
Women's certificate of business	
on own account	25

Total fees

\$512 00

Dogs Licensed.

1,250 males at \$2	\$2,500 00
143 females at \$5	715 00
4 spayed females at \$2	8 00

Total receipts for dogs	\$3,223 00
Aggregate collections	\$3,735 00

CR.

Office fees paid monthly to City	
Treasurer	\$512 00
Paid County Treasurer, dog	
license receipts	2,943 60
Retained fees, 1,435 licenses, at	
20 cents	279 40
	\$3,735 00

Dogs are distributed in the various Wards as follows:

WARDS.	1	2	3	4	5	6	7	TOTALS.
Male	145	215	193	179	170	245	103	1,250
Female	24	30	20	19	22	17	11	143
Spayed females	0	0	0	0	0	2	2	4
Totals	169	245	213	198	192	264	116	1,397

A decrease of 38 dogs from 1890.

Enrolled Militia.

WARDS.	1	2	3	4	5	6	7	TOTALS.
1891	754	829	656	616	723	753	450	4,781
1890	696	767	651	608	625	725	427	4,499
Gain	58	62	5	8	98	28	23	282

ISAAC F. KINGSBURY, *City Clerk.*

REPORT OF REGISTRARS OF VOTERS.

Assessed Polls.

WARDS.	1	2		3	4		5		6	7	TOTALS.
		Pre. 1	Pre. 2		Pre. 1	Pre. 2	Pre. 1	Pre. 2			
Men	1,014	689	559	986	667	197	545	466	1,069	677	6,869
Women.	2	3	1	16	5	0	0	3	5	19	54

Registered Voters and Votes Cast.

(From List used at State Election, November 3.)

REGISTERED.

WARDS.	1	2		3	4		5		6	7	TOTALS.
		Pre. 1	Pre. 2		Pre. 1	Pre. 2	Pre. 1	Pre. 2			
Men	520	370	418	640	436	128	292	283	628	488	4,203

CAST.

Men	452	322	357	540	381	106	235	239	544	432	3,608
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Registered Voters and Votes Cast.

(From List used at City Election, December 1.)

REGISTERED.

WARDS.	1	2		3	4		5		6	7	TOTALS.
		Pre. 1	Pre. 2		Pre. 1	Pre. 2	Pre. 1	Pre. 2			
Men	524	374	418	643	437	127	298	282	627	489	4,219
Women.	6	12	16	69	17	2	0	6	17	38	183

CAST.

Men	220	141	191	414	266	97	162	152	318	231	2,192
Women.	1	3	9	18	6	0	0	5	4	14	60

GEORGE E. BRIDGES, *Chairman.*

REPORT OF SUPERINTENDENT OF BURIAL GROUNDS FOR 1891.

Amount expended caring for the three city cemeteries,
 the City Lot and Soldiers' Monument Lot:

7 days work at \$2.50 . . .	\$17 50	
30 large posts at \$0.25 . . .	7 50	
C. A. Harrington's bill for rails and pickets	10 52	
43 1-2 lbs. nails	1 08	\$36 60
11 1-4 days work at \$2 . . .		22 50
50 days work at \$1.75 . . .		87 50
10 1-4 days work at \$1.50 (horses)		15 37
Top-dressing soldier's lot . . .		10 00
Use of tools		5 00
Thos. Mague's bill for drawing loam to River St. Cemetery		19 25
Services of H. Ross, superinten- dent		200 00
Unexpended balance		3 78
		<hr/>
		\$400 00
Amount appropriated		400 00

Part of the picket fence on the north line of the West
 Newton Cemetery has been rebuilt, and the balance should
 be done in 1892. Also a part of the Cemetery has been re-
 graded, and more needs doing.

There were twenty-three interments during the year.

City lot	16
Winchester St. Cemetery	5
Centre St. Cemetery	2
	<hr/>
	23

HENRY ROSS, *Superintendent.*

CITY OF NEWTON.

ANNUAL REPORT

OF THE

BOARD OF HEALTH,

FOR THE YEAR 1891.



NEWTON UPPER FALLS:
FANNING PRINTING CO.
1892.

At the regular meeting of the Board of Health held this day, the annual report, as prepared by the Clerk, was accepted by the Board and the Clerk was instructed to present the same to the City Council.

WILLIAM S. FRENCH, *Clerk.*

West Newton, February 15, 1892.

IN BOARD OF MAYOR AND ALDERMEN, }
February 15, 1892. }

Accepted and ordered to be printed with other city documents. Sent down for concurrence.

ISAAC F. KINGSBURY, *Clerk.*

IN COMMON COUNCIL, }
February 23, 1892. }

Accepted in concurrence.

JOHN C. BRIMBLECOM, *Clerk.*

BOARD OF HEALTH OF THE CITY OF NEWTON,
1891.

HIS HONOR, HERMON E. HIBBARD, MAYOR, *ex-officio*.

OTIS PETTEE, *President*.

Edmund T. Wiswall.

David E. Baker, M. D.

Alderman S. A. D. Sheppard.

Councilman Allen Jordan.

Clerk and Agent of Board.

WILLIAM S. FRENCH.

Agent for Issuing Burial Permits.

ISAAC F. KINGSBURY, City Clerk.

Consulting Engineer.

ALBERT F. NOYES, City Engineer.

Meetings: First and Third Tuesdays in each month, 3.30 P. M.

PAST BOARDS OF HEALTH.

1874—1885.

THE BOARD OF ALDERMEN.

1885.

Mayor J. WESLEY KIMBALL.
J. FRANKLIN FULLER.
Alderman BENJAMIN S. GRANT.

JESSE F. FRISBIE, M. D.
CHARLES C. BARTON.*
Councilman JOHN F. HECKMAN.†

1886.

Mayor J. WESLEY KIMBALL.
JESSE F. FRISBIE, M. D.
Alderman BENJAMIN S. GRANT.

OTIS PETTEE.
J. FRANKLIN FULLER.
Councilman FRANK EDMANDS.

1887.

Mayor J. WESLEY KIMBALL.
JESSE F. FRISBIE, M. D.
Alderman BENJAMIN S. GRANT.

OTIS PETTEE.
J. FRANKLIN FULLER.
Councilman HEMAN M. BURR.

1888.

Mayor J. WESLEY KIMBALL.
JESSE F. FRISBIE, M. D.
Alderman JAMES H. NICKERSON.

OTIS PETTEE.
J. FRANKLIN FULLER.
Councilman HEMAN M. BURR.

1889.

Mayor HEMAN M. BURR.
JESSE F. FRISBIE, M. D.
Alderman ADAMS K. TOLMAN.‡
Councilman EDMUND T. WISWALL.

OTIS PETTEE.
J. FRANKLIN FULLER.**
Alderman EPHRAIM S. HAMBLIN.§

1890.

Mayor HEMAN M. BURR.
JESSE F. FRISBIE, M. D.††
Alderman LAWRENCE BOND.

OTIS PETTEE.
EDMUND T. WISWALL.
Councilman LOUIS A. HALL.

*Resigned September 1. Otis Pettee appointed to fill vacancy October 19.

†Resigned October 12. Frank Edmands appointed to fill vacancy October 19.

‡Resigned September 16. Ephraim S. Hamblen appointed to fill vacancy September 16.

§Declined October 28. William F. Harbach appointed to fill vacancy November 11.

**Resigned December 31. Edmund T. Wiswall appointed to fill vacancy Feb. 3, 1890.

††Resigned May 1. David E. Baker, M. D., appointed to fill vacancy June 2.

REPORT.

To His Honor the Mayor and the City Council:

GENTLEMEN:—In accordance with the requirements of the Public Statutes and the ordinances of the city, the Board of Health herewith submits the report of its doings for the year ending Dec. 31, 1891.

Very much of the work of the Board is of such a character that it is impossible to give a detailed report of the same, and might be unwise were it possible. Up to a certain point it is within the power and province of the individual to look after the things pertaining to his own health and that of others, while beyond that point it necessarily falls upon the community at large to do the same. Should the individual neglect or refuse to do that which devolves upon him, then it becomes the duty of this Board, as the representative of the public welfare, to enforce or carry out that work. Again, where there is more than one party concerned in the abatement of certain troubles, one or more may be able to prevent the rest from accomplishing what is desirable, and here the powers given the Board have to be utilized for the benefit of all. To do this without annoyance or friction to the parties interested has been the aim of the Board, and much time and thought have been given by the members towards securing the best results possible.

Field Days.

The Board have held a large number of meetings for the purpose of transacting the necessary business, and of these,

nine have been field meetings. The general objects of these field meetings were as follows:

Jan. 21. The Board visited the Engine House, West Newton, for the purpose of inspecting its sanitary condition; the Lower Falls, for the purpose of abating several nuisances, and the new wards for contagious diseases at the Cottage Hospital. In the examinations at the latter place, the Board was accompanied by Mr. J. H. L. Coon, State Inspector of Public Buildings.

April 21. A visit was made to the piggery and plant owned by Mr. Mague on Lexington street, afterwards proceeding to Auburndale, West Newton, Newtonville, Nonantum, and Newton, for the purpose of acting upon various complaints.

May 22. The Board visited the Lower Falls, Newton Centre and Nonantum, for the inspection of various places about which complaints had been made.

June 30. The Board made another visit to the "piggery" on Lexington street; viewed the alleged nuisance on Prospect street, as required by petition presented under the provisions of the statutes; also various places in West Newton, Newtonville, Newton Centre and Newton, including the gypsy camps, on account of complaints requiring action by the Board.

July 13. The Board made an examination of Boyd's Pond and the lower part of Laundry Brook.

Sept. 2. Mr. Wiswall, Dr. Baker and the agent in conjunction with members of the Watertown Board of Health and Selectmen, made an examination of the Charles River and places adjacent thereto, to see what steps could be taken to prevent farther pollution of the waters of the river.

Oct. 6. The Board paid a visit to the Lower Falls, West Newton, and Newton, examining various places complained of. The condition of Lemon's Brook and Laundry Brook also

received attention. An inspection was then made of the carpet beating factory on Clinton street, owned by Simon A. White.

Dec. 28-29. The Board examined the estates benefited and damaged by the work of draining the "Mague meadows" so called, and Warren Avenue, under petitions of D. F. Inglis, et al., and Arthur R. Coe, et al.

Diseases dangerous to Public Health.

The care of diseases that are liable to become epidemic will always be one of the most important duties of a Board of Health. So far as it may be possible, efforts are made to trace the connection of each with some definite cause. While it is not always possible to locate the exact cause, yet almost always some contributing influences can be found, which, if they could have been remedied before the sickness came, would at least have mitigated its severity. The policy of placarding certain of the diseases dangerous to public health has been continued, and without doubt has contributed greatly towards preventing the spread of the disease beyond the confines of the estate where it appeared.

Small-pox.

Small-pox cases have now become so rare that it is only necessary to be prepared to act in the emergency when it arises. Medical science, however, has given us so much knowledge of this unwelcome visitor, that it is no longer difficult to cope with the disease when it makes its appearance.

Diphtheria.

Diphtheria has been less prevalent in 1891 than for several years past. It would seem that the persistent efforts of the Board in abolishing places liable to breed contamination, enforced isolation at home, and the use of the contagious ward, were all bearing fruit and operating towards

bringing down to a minimum point the number of cases from this dread disease. As long as we have people who will not recognize the necessity of strict isolation and quarantine in mild cases, will we have the disease in our midst. Much has been accomplished in educating our people to their present knowledge of the dangers and ravages from diphtheria, but there is still a great deal to be accomplished. The greatest difficulty encountered by this Board in dealing with cases of this disease is with people who dispute their physician's diagnosis and insist that the conditions do not warrant the same or the necessity of our restrictions. This Board is not responsible for the diagnosis. Once made by the physician and reported to us, it must stand, and be placed under the usual restrictions for the protection of the public. Better twenty, yes even a hundred reports of supposed diphtheria than one failure to correctly diagnose the disease.

A careful examination of the chart will show that in 1885-86 and 87 diphtheria had but few cases during the summer vacations of the schools. In 1888, however, the chart shows a somewhat different story. In 1889 the number of cases were also less during the months of July and August, and in 1890 the disease diminished from the middle of June until it disappeared entirely for a few weeks. In 1891 similar facts are seen to exist. This examination would seem to point to two facts:—first, that many cases which are in reality diphtheria, or of a diphtheritic nature, have been considered to be only tonsilitis, or severe colds; second, that all throat and even nasal troubles bordering on the diphtheritic nature, however treated, should as far as is possible, be completely isolated from the rest of the family until all danger has passed. Even an ordinary cold is oft-times contagious although no serious results come from it. It is therefore easy to understand how our schools, through these unrecognized cases, often become the medium of communication for the spread of the disease. While we have been so fortunate

during the last year in having less diphtheria, we cannot afford to relax our vigilance.

Influenza.

In the early part of the year influenza or (la grippe) reappeared, and while perhaps it was not as universally prevalent as the year before, the fatalities resulting from its complications with other diseases were much greater. Many, weakened by an attack the year previous, succumbed to this fresh assault. Pneumonia was the favorite complication with influenza. The large increase in the number of deaths was mainly due to the prevalence of this disease. Many of those who have recovered still feel its effects, and it is even now exerting an influence on our death rate. While it is included among the list of preventable diseases, nothing has yet been found that we are aware of where a Board of Health could take any specific measures to stop its progress.

Measles.

Early in the spring of 1891 measles was placed in the list of diseases dangerous to public health. This was in keeping with similar action on the part of other boards of health, and the feelings and recommendations of the State Board of Health. Many people laugh at the idea of trying to control the spread of this disease, as it is considered a child's disease and of no great consequence. No good reason can be advanced for desiring a child to be sick with any disease, even what are termed children's diseases, for what may be all right in one instance may be all wrong in another. Because one child is rugged and can throw off the disease easily is no reason why we should allow that child to run at large freely and even attend school, and be the means of communicating it to a neighbor's or friend's child who may have an impaired physique, thus inflicting on them additional pain or expense, and possibly in extreme cases, fatal results.

As an ounce of prevention is worth a pound of cure, we now require all cases of measles to be reported, and placard the premises for a reasonable length of time.

The number of cases reported last year was 136. These statistics are necessarily imperfect, especially as the disease was prevalent in almost every part of the city, and oftentimes no physician was employed. Now a start has been made and it is hoped that succeeding years will see this disease put under as thorough control and watchfulness as the other diseases of a contagious character.

Membranous Croup.

Not many cases of this disease have been reported to the Board, and what we can say on this subject has been fully covered in previous reports. The best authorities, both medical and sanitary are coming to agree on the point that there is no difference between membranous croup, so-called, and diphtheria. All that has been said therefore, with reference to isolation, disinfection, etc., in cases of diphtheria is equally applicable to cases of membranous croup, so-called. However, we do not interfere with the opinions of any physician as to the character of the disease, but for the benefit of the public we enforce regulations relative to the care of the same.

Scarlet Fever.

The first four months of the year shows as many cases of scarlet fever as occurred during the whole of the preceding year. The close of school showed the usual absence of cases and emphasizes the point that our schools are the means of spreading contagious diseases, owing to the large number of unrecognized cases that occur.

In the colored district at West Newton, during the summer there were undoubtedly several cases of scarlet fever where no physician was ever in attendance, the disease being

in such a mild form. Whether the parents of these children were really cognizant of the character of the disease, or were themselves deceived, calling it a heat rash, will never be known. We *do* know, that in September, one of the teachers in the Barnard school discovered a colored child in her room covered with scales and upon looking into the matter decided to report the facts to this Board for further investigation. As a result, it was found that nearly a dozen cases were then in progress, in various stages, and that some had already recovered. As the school-rooms and books had evidently become infected and the liability of future cases was great, the school was immediately closed and thoroughly disinfected. Such of the books as were known to have been in the possession of the infected children were destroyed. There can be no question that the prompt work of the Board stopped any further progress of the disease in the school building, and the measures adopted in the infected district soon brought the disease under control.

About a month later, at Newton Centre, in the Rice and Mason schools, another outbreak occurred. As near as can be determined from our investigations, two children in different sections of the school district were sick with what the parents termed "malaria." At first no physician was called, and only when the infants in the families were found to be ill were they summoned, and the real cause of the trouble found out. As the members of these families had mingled freely with the school children, and as new cases were rapidly developing, the citizens became alarmed and demanded of the district committee the closing of the schools. After consulting with this Board, the committee deemed it advisable to accede to the request, and the buildings were as thoroughly disinfected by us as the Barnard had been. Immediately almost, the spread of the disease was stopped, and again was demonstrated the responsibility of the schools for the communication of diseases.

The disease has been of an exceedingly mild type and has puzzled our physicians several times as to whether it was really scarlet fever or not. The rash would often disappear in twenty-four hours after its appearance, and the child would not be so sick as to be in bed at all. The number of cases reported during the year has been 105.

Typhoid Fever.

There has been about the usual amount of this disease during the year. No one section of the city has been responsible for more than its share. It is exceedingly difficult for us to be able to trace the cause of this disease, as nearly the entire city is supplied with city water. The summer visitations of our citizens are responsible for the larger number of cases, and many unsanitary conditions are countenanced and overlooked at these places that would be instantly put down at home. In one family, where three cases occurred, one terminating fatally, the disease was shown conclusively to have been contracted in New Hampshire and brought here. There is the greatest need of care being taken by the house nurse of the dejections from the patients. As a rule, the physicians look after this point very carefully, but in a few instances they have given no directions whatever. In such we have endeavored to supplement the physician's work and given directions for the care of infected substances, such as vaults, cesspools, etc., Many of the cases which occur are sent by the attending physicians to the hospital at once and are then forgotten, so that we do not always receive as prompt reports as are desired.

COTTAGE HOSPITAL.

This institution has continued its work in spite of many trials and discouragements. In response to the wishes of some of the physicians connected with the staff of the Hospital, the Agent of this Board made a very careful and ex-

tended examination of the sanitary conditions existing there. The following exhaustive report was submitted to us, revealing many facts of a startling character, and showing conclusively that the fears of the physicians were well founded.

WEST NEWTON, MASS., Jan. 7, 1891.

To the Board of Health of the City of Newton:

GENTLEMEN:—In accordance with the wishes of the Medical Board of the Newton Cottage Hospital as expressed to me through its chairman, Dr. Otis E. Hunt, I have made an examination of the Hospital buildings and surroundings, and would herewith submit the results of the same for your consideration, together with a few recommendations. I understand that a feeling of uneasiness was created in their minds by the fact that typhoid fever had developed among the nurses both in 1889 and 1890, and also during the month just past, in one of the patients in the "Georgia Leeson" Ward, who was being treated for an entirely different cause. Previous to receiving Dr. Hunt's communication, I had been making investigations of my own for the same reason, and I have endeavored to make it thorough and complete.

For the sake of convenience I have made the examination under various heads which will appear in the report. Not being familiar with the construction of the building, I was somewhat at a disadvantage, but every facility for investigation has been rendered me by all connected with the Hospital and also by the Architect.

PLUMBING.

This includes all pipes and fixtures for disposing of waste liquid matter and excreta. I find that all the soil and waste-pipes are properly hung and have a proper grade. All the fixtures are properly trapped and ventilated. I also gave them an unusually severe peppermint test and found the pipes and joints were all tight, the traps properly sealed, and no odor of peppermint was detected to show a leak.

I find that the slop sinks for both the male ward and what was formerly the female ward are lined with lead. This material in my judgment, is not a proper one for that purpose, as it retains

more or less of the liquids passing over it, and is very difficult to cleanse. I fear that in spite of the large quantity of disinfectants used in the building some of the disease germs may be held here long enough to become a source of infection. I would therefore recommend that they be replaced with crockery ones, similar to those which are to be used in the contagious disease wards, or at least, have the linings replaced with enamelled iron, as has been recently done in the one connected with the "Georgia Leeson" Ward.

I also find that in the entry of the main building is a bowl or basin situated near the corridor leading to the male ward, which is not in use. As we are all sometimes liable to forget simple precautions, I would recommend that the basin be either put into constant use or taken out entirely, and the waste-pipe beyond the trap hermetically and surely sealed, so that no gases can escape into the building.

A remark was made that some odor had been detected at the sink in the dietary connected with the "Georgia Leeson" Ward. I think this comes from an accumulation of grease in the trap, and would be remedied by cleaning out or the use of potash.

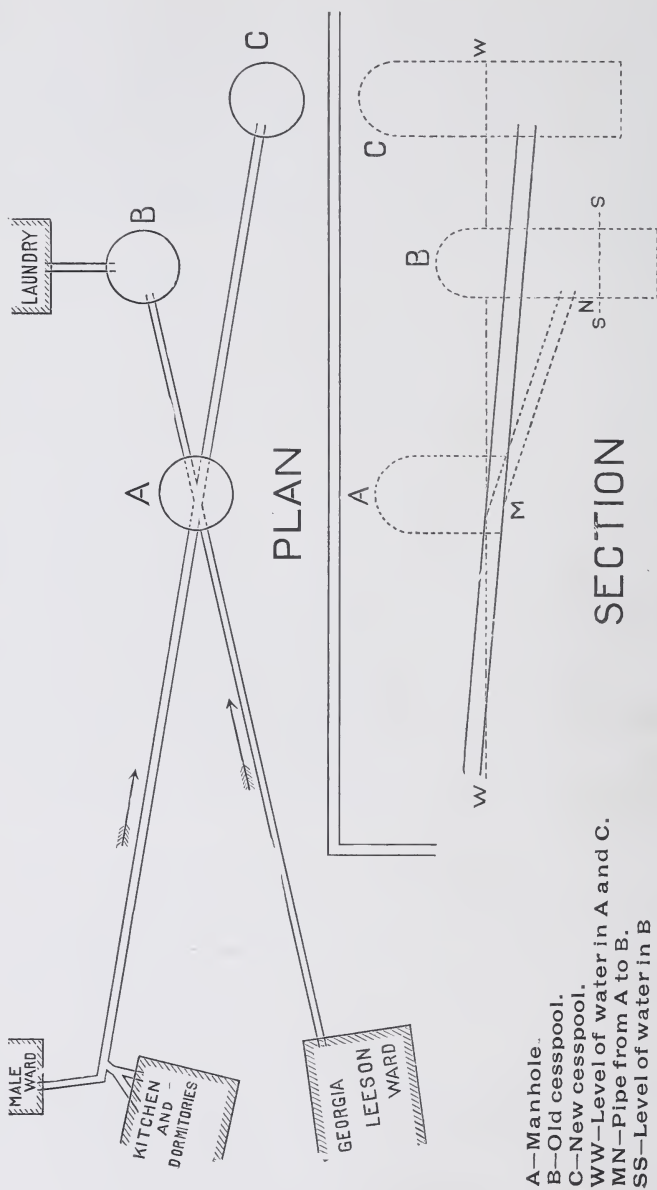
I also find that the hoppers of the water closets are not provided with local or seat vents. With the rooms arranged as they are at present, this is quite a serious cause of polluting the air breathed by the patients, although if the rooms are disconnected from the wards as I hope they will be, this objection would be greatly obviated. It is better of course, to have such vents than not. This applies also to the bath-room opposite the matron's room.

Before leaving this subject, I would say that the slop sinks which I have spoken of, are what we call long hoppers, and I would suggest that if they are changed in accordance with my recommendations, that, if it is possible, short hopper ones be substituted for the long.

DRAINAGE.

Under this head, I include what might be called the out-of-doors plumbing and the cess-pools. I found that the fresh air inlets were working properly and that the currents were strong above the roofs. At the same time, complaints were made that

owing to the constant use of the fixtures in the building, there was considerable odor coming from them at quite frequent intervals. This being the case, and knowing that the air which thus comes out may reach the wards at certain seasons, I would recommend that the fresh air inlets be continued of undiminished size to the roofs, or to such elevation as will preclude the foul air, if any, from entering the wards. I present herewith a sketch which will perhaps make the condition of things with reference to cesspools more clearly understood.



I find that when cesspool "B" began to be overcrowded with the work demanded of it, a new cesspool "C" was built, with the idea of taking the overflow from "B" after receiving a portion of the daily flow from the main buildings.

From my examination, and from levels taken by the City Engineer, I find that the cesspool "C" undoubtedly receives nearly all the daily flowage from the old buildings of the hospital, and probably a portion of the discharge from the "Georgia Leeson" Ward; the cesspool "B" receives the discharge from the Laundry, a portion of the drainage from the "Georgia Leeson" Ward, and possibly a small amount of the remainder.

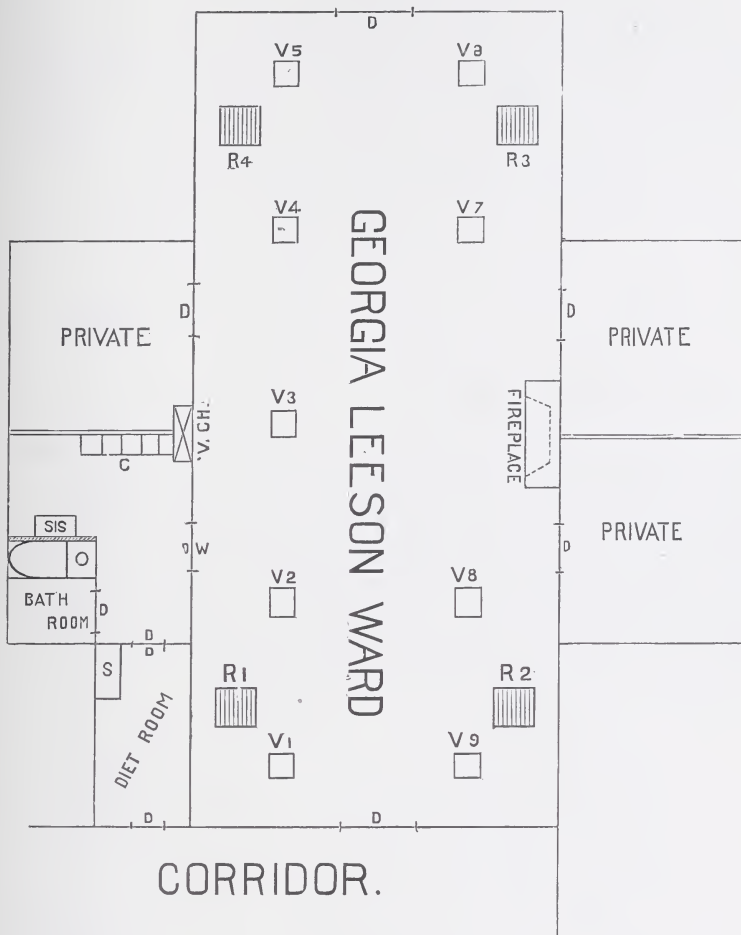
I find that the bottom of the cesspool "C" is 4ft. 3in. higher than the bottom of "B," and while unable to measure the areas at the bottom, I do not think there is difference enough to allow of "B's" getting filled and overflowing into "C." In my opinion, the overflow will always be the other way. I also was told that at the time Miss Sutherland was taken sick last September, "B" became full, the drain-pipes were stopped and backed up, and some of the sewage even appeared on the surface at "B." Mr. Mague was ordered to clean out the cesspools at the Hospital, but not knowing that a new one had been built, only "B" was emptied. As a consequence, in two weeks time the pipes again became clogged. I was sent for and I ordered both cesspools emptied, and the pipes cleaned. The water in "C" was at the same elevation as in "A," but was two feet or more lower in "B" than either "A" or "C," clearly showing that the pipe between "A" and "B" was stopped. Since this last clearing out, I believe there has been no trouble.

In this respect, I would recommend that a series of tanks with distributing pipes be built near the Washington street embankment to receive all the drainage from the new ward for private patients and the overflow from both "B" and "C." This is the same principle as will be in use for the contagious disease wards, and I think can be used here with good results.

VENTILATION.

My examinations with reference to ventilation have been conducted in company with Mr. J. H. L. Coon, State Inspector of Public Buildings, and all actual experiments for purity and

currents of air were made by him. In order that you may see at a glance the results of the experiments, I submit at this time rough sketches of the wards, and by reference to them I think that everything will be clearly understood.



C—Closets for clothing (patients).

D—Doors.

DD—Entrance from Diet room to Slop Sink room (always open).

DW—Entrance from Ward to Slop Sink room (always open).

S—Sink.

SS—Slop Sink.

R-1-2-3-4—Hot air registers.

V-1 to 9—Ventilating registers below beds to carry off foul air.

V-CH—Ventilating chimney.

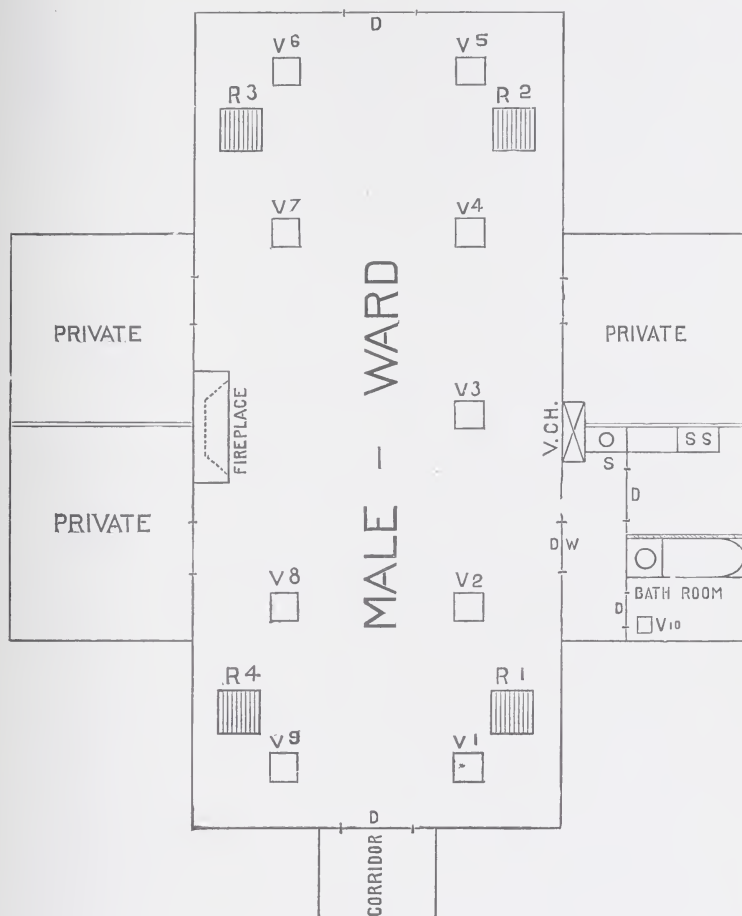
EXPERIMENTS.

Georgia Leeson Ward, 4 patients in ward.

Register	1	Air coming in at a velocity of 240 feet per min., at temperature 180°							
2	"	"	"	"	300	"	"	"	164°
3	"	"	"	"	320	"	"	"	140°
4	"	"	"	"	340	"	"	"	158°

Vent	Register	1	Velocity per minute 60 feet into ward		
	2	"	"	0	
	3	"	"	60	" out of ward.
	4	"	"	100	" into ward.
	5	"	"	60	" " "
	6	"	"	90	" " "
	7	"	"	50	" " "
	8	"	"	0	
	9	"	"	20	" " "
	—			—	

Temperature of room taken at 6 feet above floor as follows:
 Door from corridor 70°—fireplace 66°—door to private room on right 70°—door to room on opposite side of ward 69°. Metallic thermometer of hospital registered 69° at about 8 feet above floor. Temperature out of doors 20°. Good draught up the fire place. It took 42 fillings of the "Wolpert" air tester to discover amount of carbonic acid gas in the air of the room— $4\frac{8}{10}$ parts. Fifty fillings represents pure air.



D—Doors.

DW—Entrance from Ward to Bath and Slop Sink rooms (always open).

S—Bowl for glasses, dishes, etc.

SS—Slop Sink.

R-1-2-3-4—Hot air registers.

V-1 to 9—Ventilating registers below beds to carry off foul air.

V-CH—Ventilating chimney.

EXPERIMENTS—MALE WARD.

Register 1	Air coming in — Velocity of 320 feet per minute, temperature						142°
2	"	"	"	"	340	"	152°
3	"	"	"	"	340	"	130°
4	"	"	"	"	260	"	164°

Vent Register 1 Velocity per minute, 70 feet into ward.

2	"	"	80	"	"
3	"	"	90	"	"
4	"	"	70	"	"
5	"	"	60	"	"
6	"	"	60	"	"
7	"	"	60	"	"
8	"	"	100	"	"
9	"	"	120	"	" at a temp. of 72°

Vent Register in bath room, velocity per minute 80 feet into room.

Fireplace flue velocity per minute 320 feet out of ward.

Temperature of room taken at about 5 feet above floor as follows : On bedstead near entrance to bath-room 81 °. Entrance to sunning room 75 °. Entrance to private room on the left nearest sunning room 80 °. Entrance to private room on the left nearest entrance to ward 78 °. The ward thermometer agreed with the latter. Temperature out of doors 20 °. The "Wolpert" air tester showed 38 fillings, representing $5\frac{3}{10}$ parts of carbonic acid gas. Seven patients in the ward.

The experiments in the "Georgia Leeson" Ward show that the ventilating ducts in the floors under the beds instead of taking the foul air out of the room are bringing in air from the cellar, or occasionally one register will draw some of the air out and deliver it into the ward again through another register.

The experiments in the male ward show the same results, with the addition that a portion is delivered into the bath-room, to be drawn out into the ward with any foul air that may be mixed with it in its passage through. It is very evident from these examinations that the fire-places have been the saving of the wards, and have undoubtedly averted serious consequences.

The principle of the system as designed by the architect is all right, but due care has not been taken to see that it was working properly.

It was found that no heat had been provided in the flue of the ventilating chimney of the "Georgia Leeson" Ward, although the architect had called for it. This has probably been remedied

by this time by the introduction of a steam pipe into the flue. This will answer for such months as there is steam in the building. For such months as there shall be no steam, I would recommend the introduction of a large "Bunsen" gas burner. But after this is done, I don't believe the system will be made to work properly as long as the present wooden duct chambers are used in the cellar leading to the chimney flue. The joints are all open, preventing the proper draught, and creating a draught of cellar air in the opposite direction into the ward, as is the case at present. I may perhaps be pardoned if I state that these wooden flues for ventilating purposes are contrary to the State law, as will be seen by a reference to the Acts of 1888, Chap. 426, Sec. 8. I would therefore recommend that the wooden ventilating ducts be removed and galvanized iron ones be substituted therefor, with elbows or curved bends instead of **T** or right angled ones. I would also recommend that the capacity of these ducts be increased to more nearly correspond with that of the flue in the chimney.

It will be seen that the results obtained in the male ward were similar to those in the "Georgia Leeson." Upon examination it was found that the ventilating flue of the chimney had steam heat inside, with an upward current, the velocity of which was 775 feet per minute. But the air which sped along upward at such a great velocity was taken from the cellar or basement, and not from the ward where it should have been. There were two causes for this: 1st, a large opening in the brickwork of the flue around the ventilating boxes, and 2d, the open joints and right-angled changes of directions in the wooden flues or boxes. The air of the basement was very warm and stifling and this was being delivered into the ward and into the ventilating flue. My recommendations here are the following: To change the wooden ventilating boxes to galvanized iron ones with elbows and curved bends as before recommended for the other ward; to introduce a "Bunsen" gas burner for the summer heating of the ventilating flue, and to make tight all brickwork around the ventilating boxes as they enter the chimney flue.

I feel that the rooms which contain the water-closets, slopsinks, and bath-tubs ought not to have a direct entrance from the wards, as the air in these rooms cannot be as pure as that which

the patients ought to have. I therefore recommend that the entrances marked DW in my sketches (pp. 23 and 25), be walled up. This would necessitate the opening of new corridors to connect the wards with the bath-rooms, which can be easily done by giving up the use of a private room in each case.

As there is no ventilation provided for any of these rooms except the bath-room for the male ward, I would recommend that a *separate* ventilating shaft be put in, having the same appliances for creating a circulation as I have already recommended. The rooms opposite the matron's I would recommend to be ventilated in a similar manner.

There is a ventilating flue in the chimney of the nurses' dormitory, or former female ward, which I recommend to be put into proper condition and utilized. Also, that the indirect radiation from the registers be put into proper working order.

I would also recommend that the ventilation of the "children's" ward be extended and put into good working order.

I also recommend the placing of mixing dampers so that the temperature of the warm air brought into the various wards and dormitories can be regulated by the nurse or attendant in charge of the ward; also that a larger amount of fresh cold air be supplied the heating radiators.

I also recommend that some guard or device be placed near the monitor roof ventilation to prevent the driving storms from entering the garrets and spoiling the ceilings or leaking into the wards.

In order to insure the working of all ventilation, I recommend the purchase of an Anemometer and also of a "Wolpert" air-tester, and that the nurses be instructed in the use thereof. Under the present arrangements an immense volume of heat is being poured into the cellar and basements and lost for any useful purpose.

DISINFECTANTS.

As typhoid is the only disease classed among contagious diseases that is admitted into the hospital, I will consider this question more particularly from this one stand-point. For the disinfection of the stools etc., I recommend the use of chloride of lime in its pure state, which is only obtainable when it is fresh.

There should be as nearly 30 per cent. of chlorine as possible in the article used and this standard deteriorates very rapidly when exposed to air and heat. With a little instruction and ingenuity I think the hospital would be able to provide its own chloride of lime, and thus insure its strength.

Some of the lime should be placed in the vessels before receiving the stools, and afterwards the stools should be covered with the lime and allowed to stand two or three hours before being sent to the cesspool.

For the clothing, I would recommend that it be soaked in a solution of bi-chloride of mercury (1 to 500) and after soaking for an hour, thoroughly boiled.

At least once a month I recommend the disinfection of the cesspools by the use of copperas and bi-chloride of mercury.

Once in two weeks I recommend the cleansing of all waste pipes by crude-potash flushed down by hot water, followed by copperas dissolved by boiling hot water for disinfecting purposes.

The use of bi-chloride of mercury is to be carefully looked after on account of the danger of eating away the iron waste pipes.

For cleaning of bath-tubs, all marbles, enamelled iron, and general crockery-ware of plumbing etc. I recommend the use of dry table salt.

I would also recommend the use of permanganate of potash for deodorizing the water-closet bowls, slop-sinks etc.

OUTSIDE INFLUENCES.

To the north of the Hospital are several stables, most of them being controlled by Mr. Thompson. The stables used for his horses are in generally good condition and no fault can be found with them at the present time. There is also a cow-barn which is not as clean as it might be when I visited there. The manure is dropped underneath the barn, and to the eastward is open and exposed to the air. The manure from the other stables is piled on the ground to the north of the cow-barn. Every rain and thaw of snow carries liquid from this pile of manure over the surface of the surrounding land, and under the right conditions of weather I should suppose might create considerable odor.

Near this cow-barn, on the hospital grounds is a shed which is also used for stabling purposes, with the manure thrown out on

the ground towards the hospital. I would suggest that the hospital stable be moved to a more suitable place with proper manure pit provided.

To the west of the hospital on the opposite side of Washington street, Mr. Gleason has been keeping six pigs. The Board of Health have notified him that after the spring killing, the keeping of pigs will be regulated by them, so that no further recommendation is necessary.

I have recently learned that the contents of cesspool wagons have been used for fertilizing purposes on the fields north-west of the hospital. I have no doubt that the Board of Health will see that this is prevented in the future.

In conclusion I desire to thank Mr. Coon, Miss Peters and all who have aided me so materially in these investigations, and for the many kind acts and courtesies received.

Respectfully submitted,

W. S. FRENCH,

Agent of Board of Health.

This report was approved by us and forwarded to the Executive Committee of the Hospital for their consideration. Many of the changes and recommendations contained therein have been carried out, and had it not been for financial troubles and lack of means, it is to be presumed that the others would have been.

The most important change inside the buildings has undoubtedly been the improvements made in the ventilation of the "Georgia Leeson" Ward, and the construction of a typhoid disinfecting closet for the same ward.

This Board was requested to allow its Agent to superintend the work of changes, etc., but this could not be done. He was, however, authorized to give any assistance that he could towards securing the desired results. Upon farther examination, our Agent recommended the introduction of a mechanical system of ventilation instead of what was recommended in the report. This also met the views of the State Inspector more fully. A contract was therefore made by the

Hospital with Mr. Gosline for alterations in the ventilating system. A large 24-inch Blackman fan-wheel was placed at the foot of the ventilating chimney. The foul air ducts leading from the ward to this chimney were all reconstructed, being made of galvanized iron graded in size, and as much friction as possible done away with. The fresh air boxes were also reconstructed and mixing dampers put in. To operate the wheel a small "Otto" gas engine was placed in the basement. The foul air is drawn out of the ward from underneath the beds through the ducts to the chimney by means of the wheel, and is then forced out of the chimney by the same power. The experiments which have been made show that this is done so that no draught is made at any place and yet all the air in the ward is operated upon. Before the absolutely final results can be definitely reported upon, another series of experiments must be made under similar conditions as to temperature, etc., as those existing at the time the defects were discovered.

A new passageway to the bath-room was constructed by giving up one of the private rooms. In this corridor was partitioned off a closet, extending to the open air at the top, lined with tin and all the joints soldered. A large Bunsen burner was placed inside so as to insure an upward draught, the air supply being taken from below. All typhoid dejecta is brought here and thoroughly disinfected before being sent to the cesspool.

The results obtained in the Georgia Leeson Ward serve to emphasize the imperative necessity of similar changes in the other wards and the nurses' dormitories, and now that the Hospital is reported to be out of debt, it is to be hoped that the money will be forthcoming for these much needed improvements.

A new and large cesspool was constructed for the drainage from the "Leeson" Ward and the new private patients building, which greatly relieves the old ones. An overflow

drain was also constructed from the old cesspool "C." It is hoped that these measures will obviate any farther trouble with the cesspools until the public sewer is built.

Hospital for Contagious Diseases.

The buildings for the care of diphtheria, scarlet fever, and small-pox, which were in process of construction at the time of our last report, have been completed and put into use. All cases have been cheerfully taken care of by the staff and nurses of the Cottage Hospital.

In the early part of the preceding year the ground plans had been submitted to this Board and received its approval. No detail plans or specifications were ever shown to us, and so far as we know, to no representative of the City Government. No person having been designated by the City Council to see that the buildings were completed in a manner suited to the use for which they were to be put, this Board felt justified, as the parties directly interested, in trying to carry out the latest ideas and methods of hospital construction.

In order that our own observations with reference to ventilation might be reinforced by expert testimony, Mr. J. H. L. Coon, State Inspector, was requested to give his opinion upon the heating and ventilating of these buildings. He unhesitatingly pronounced them inadequate if at any time in cold weather, the wards should be full. With only one or two persons in a ward at a time, they would probably be sufficient, as also in warm weather when windows can be opened.

Our Agent, after receiving instructions from us, made a careful examination of the buildings to be used for contagious diseases, and presented the following report, which was approved and forwarded to the Building Committee of the Hospital.

To the Building Committee of the Newton Cottage Hospital.

GENTLEMEN :

As the buildings for the care of contagious diseases are not yet completed, and as the Board of Health of the City of Newton feel that you are desirous of obtaining the best results possible, after visiting the premises and considering the results to be reached, they have instructed me to prepare a report in their behalf, under the general supervision of Dr. Baker, suggesting such changes and improvements as are desirable to insure their successful operation.

In accordance with these instructions I have examined these buildings and would submit the following for your consideration :

SMALLPOX WARD.

It seems to me that due consideration has not been given to the fact that whenever this ward is put into use it has got to become the home of the nurses and patients therein, and that they are cut off from all intercourse with those outside. For that reason probably there will be more suggestions with reference to this ward than for the others.

As will be seen by reference to my report on the original buildings, I object decidedly to the rooms containing the water-closets, opening directly out of the wards. I therefore recommend that the present entrances to those rooms be walled up; new ones made where it was formerly proposed to have windows; additions made on each side to the ell containing the water-closets with entrances from the wards through into the closets. I would also recommend that a swing door be placed in the partition between the two closet rooms, and that one of the water-closets be changed to a slop sink of the same pattern as used in the diphtheria and scarlet-fever wards. I also recommend the

putting in of a sink similar to those used in the dietaries, in the room used for the slop sink.

No provision has been made for a diet kitchen. As the nurses will be obliged to cook their own meals as well as those of their patients, this is very essential. I would recommend that an addition be put on the front of the building to contain a kitchen and an additional passageway wherein a linen press (similar to the one just built for the male ward of the main building) can be placed, also closets for patients clothing. As accessories of the kitchen, I would recommend a good sized range with a water-front and an ordinary house boiler connected therewith. I would then recommend the supplying of the slop-sink, the ward sink in the same room, and the dietary with both hot and cold water.

No provision was made for a laundry. I would therefore recommend the putting in of a laundry in the basement of the ell, below the water-closet and slop-sink rooms, and that the same be connected by means of stairs and a trap-door. I understand that a suggestion has been made to place a laundry under the diet kitchen. There are quite serious objections to this and I hope that it will not be longer considered.

There should also be some small room or tight closet provided for the proper disinfection of the patients clothing, etc. This can be done in connection with the laundry, I should think, with the entrance to the closet from the outside.

The only method that has been provided for heating and ventilating this whole building is by the fireplaces in each ward. This disease is one of the worst that we have for foul emanations and everyone will admit that this is one of the most vital questions in a hospital; I would therefore recommend that this subject be referred to a committee, consisting of the architect, some member of the Board of Health, and one other whom you may select, with full power to put in such a system as will meet the requirements of the State Inspector.

I most unhesitatingly condemn the present scuttle openings in the ceilings of the wards as I have previously done in the other contagious wards.

DIPHTHERIA AND SCARLET FEVER WARDS.

The system of ventilation as designed for these buildings has

been pronounced inadequate by the State Inspector. No ventilation whatever is provided for any of the rooms adjacent to the wards or for the rooms in the central building. The rooms in the central building will probably be in constant use night and day if both scarlet fever and diphtheria are being treated at the same time. Ventilation should therefore be provided for these rooms if possible, and also a room or place provided for the proper airing of the bedding, etc. of the nurses.

I would therefore recommend that the subject of heating and ventilating in these buildings be referred to the same committee as before, with a recommendation that the indirect system be used, as upon investigation this seems to be feasible.

The plumbing is undoubtedly as good as can possibly be obtained and meets with hearty approval.

The drainage of the buildings if finished in accordance with the system at present designed, will undoubtedly be ample and sufficient for all purposes.

There should also be provided a good sized brick vault or chamber properly fitted up for the disinfection of articles by steam, or dry heat at a high temperature. I would recommend that this be placed under the scarlet fever ward, as that disease needs it as much as any.

MORGUE.

The proper and successful conducting of an autopsy requires an over-head light both day and night. I would therefore recommend that this be introduced. It will also need some provision for drainage.

In conclusion, while you may consider that many of these recommendations are unnecessary, we must remember that every nurse who enters upon the duty of caring for patients having contagious diseases, exposes her life and health. It is therefore incumbent on us to see that every convenience or safeguard possible is provided for the welfare of those who are unfortunate enough to be obliged to use these wards, and I trust that they will all meet your cordial approval.

Respectfully submitted,

W. S. FRENCH,

Agent of Board of Health.

Some of the changes recommended in this report have been cheerfully made. No change, however, has been made in the heating and ventilating. The method adopted for the disposal of the sewage from these buildings, contemplated the introduction of a system similar to that which has been in successful operation at the Prospect School, Upper Falls. The receiving and settling tanks are now used as tight cess-pools, and must of necessity be frequently opened and emptied. It was intended, however, that they should be intermittent and automatic in their action, discharging by means of siphonage into porous tile drain pipes branching in various directions, and running off into the field below. It is to be hoped that the system will be completed and the remaining changes made at an early date, for these buildings supply a necessity that was long felt and that cannot be procured at a moment's notice. We would especially recommend also the introduction of disinfecting closets.

These buildings will prove to be of inestimable benefit, the more that our citizens realize that here they can secure treatment and care far better than can be given in any private house, especially in severe cases where steam is required, or tracheotomy is to be performed.

Disinfection.

The same policy with reference to the care of infectious diseases has been pursued as in former years. The houses have been placarded, and upon receiving notice from the physician that the premises were ready, they have been thoroughly fumigated. So far this work has proved very efficient. No better evidence could be asked for than the results obtained in the Barnard, and later on, in the Mason and Rice Schools. In the Barnard School, scholars in the process of desquamation were sent home by their teachers. It could not be told how much infection existed there, nor where. Every scholar was threatened, through the use of

books handled by infected scholars. Immediately upon closing the school, such books as were known to have been in the hands of the infected were burned. All of the others were spread open as much as possible, on top of the desks, all the inner doors thrown open and the building fumigated from cellar to garret, about four hundred pounds of brimstone being used. In about 18 hours the building was thrown open and aired. Then a force of nine or ten individuals was put to work and every inch of the building was washed in a solution of corrosive sublimate. The pens, rulers, etc., were dipped in a similar solution, and the books were thoroughly dusted and brushed. When through, the teachers were proud of the cleanliness of their building, as were also the teachers at the Rice and Mason schools which were treated in the same manner. No cases were developed in these schools after this disinfection and the threatened epidemic of scarlet fever averted. Could a private house be handled in the same manner, the results that could be obtained in preventing disease would be wonderful. The experience in these schools points us to the great danger that exists in the interchange of books and other school property which comes from the city's ownership of the same. While we do not wish to advocate the repeal of the present law because of any danger of infection that may come from such interchanges, yet it would seem advisable to reduce this danger to its minimum, and in some way have each scholar use the same set of books, etc., during the year.

No housekeeper would feel satisfied with having her house cleaned in the manner that our school-houses are cleaned in the summer. As carried on at the present time, the summer cleaning, done just before the re-opening of the schools, is an optical delusion—an attempt without the reality. As long as the schools have been clearly shown by not only our own experience but that of other places, to be the starting point of a great many cases of infectious disease,

it is especially recommended that every school-house in the city be put through the same thorough disinfection each year in the summer vacation as has been herein described, with the addition of a coat of whitewash to all the cellar walls.

Ashes.

The removal of ashes is in charge of the Highway Department and under the immediate supervision of the Superintendent of Streets. Many of our citizens are of the opinion however, that it is conducted by this Board, as the receipt of occasional letters relative thereto have shown. At the proper time it may be deemed advisable to unite this work with others, bringing it all into the Health Department. The work has been done in its usual satisfactory manner.

Dumps.

The condition of the dumps in the city had been the cause of much complaint and a great deal of criticism. The Board accordingly put a man to work in the spring levelling them off, and burying all objectionable matter. He has been kept steadily at work and the improvement and benefit which has accrued have shown the wisdom of this proceeding. The Board accordingly asked for and obtained an appropriation to continue the work during the coming year.

Drainage.

During the year but one petition under what is known as the "wet land act," has been presented to this Board. It was that of P. Cox et al., for the abatement of an alleged nuisance on the south side of Prospect street, Ward 3. The Board upon examination did not feel called upon to proceed any farther under this act, but have been abating the trouble through other means and the work is now very nearly accomplished.

In December 1890, this Board received an appropriation and passed the necessary orders for the drainage of what is known as the Mague Meadows and adjacent district. As it was too late to do the work that year, the City Government of 1891 re-appropriated the money and the work has been nearly completed. When finished, it will form no small part in the surface drainage of this vicinity.

The Bullough's Pond district needs a systematic plan of drainage and cleaning, not only as a matter of development for the city, but as an actual necessity for the benefit of the people in that neighborhood.

As the surface drainage of the city has got to be considered entirely independent of the sewerage system, this Board will undoubtedly receive petitions from time to time under the provisions of the "wet land act." The Board would therefore renew its recommendation for the establishment of a loan to be drawn upon in a proper manner through your honorable body.

Glanders.

Evidence is rapidly accumulating that this disease is far more prevalent in the state than has been admitted. As a rule all possible efforts are made to conceal the existence of the disease and to quietly dispose of the animal. If the animal is immediately killed and the stable is properly disinfected all public ends are satisfied, as far as trying to prevent the spread of the disease is concerned. But the Board of Health should be promptly notified and enabled to pronounce upon the thoroughness of the disinfection. This disease is altogether too dangerous not only to animals but to the human race to allow financial consideration to prevent the carrying out of measures to stop the spread of the disease.

No absolute rules for the guidance of Boards of Health, or of individuals, relative to disinfection, have been prepared by the State Cattle Commission, but we are informed that this defect will be remedied at an early date.

The Board will aid all proper endeavors to keep the knowledge of any case from becoming public, but it intends to do its whole duty and enforce compliance with all regulations relative to notification and isolation, even to prosecution, if found necessary.

During the year four cases of glanders have been reported to the Board, two of them from one stable. All of the horses were immediately killed and removed and the stables disinfected. One other suspected case was reported near the close of the year, but after careful examination and treatment by a competent veterinary, the animal was declared sound by both surgeon and State Cattle Commission and the quarentine removed. Had the results of these examinations been otherwise, the consequences would have been serious, for several stables would have been infected, and evidence enough could have been secured to have caused several prosecutions.

House Offal.

The disposal of kitchen refuse, or swill, as it is more commonly called, is one of the most perplexing questions of the day. Already has this question become a serious one with us. As long as the contractor was enabled to use the "Island" so called, there were scarcely any complaints. Indeed, we have recently understood that it was perhaps more of an annoyance to our neighbors than to ourselves. But the taking of the "Island" for other purposes obliged the contractor to secure another place. He accordingly purchased an estate on Lexington street where the length of haul is about the same as before. This estate has a large, level tract of land extending back from Lexington street

some three or four hundred feet to the brow of a sharp hill, leading down to a large, heavy swamp. Near the brow of this hill is set the box to receive the swill collected, from which the farmers cart it away to farms in the interior to be fed to hogs. Just under the brow of the hill, the contractor has a piggery of his own. There has been considerable complaint of the piggery as well as of the whole plant, but the majority of it has seemed to emanate from one particular source and to have the appearance of personal spite. Undoubtedly there are times when it is an annoyance but much more has evidently been laid at its door than should be. The piggery and the sale of the swill to the farmers furnish much of the revenue received by the contractor. The removal of these sources of revenue means a greatly increased cost to the city for the collecting alone. There is no question that the abolishment of the plant on Lexington street, either in whole or in part would give great satisfaction to a considerable number of our citizens. But after its abolishment the question of disposal still remains. The swill cannot be buried, neither can it be dumped into the ocean. There are great objections to selling it for feeding purposes. Only one resource is left, viz: to burn it. The establishment of crematories for the disposal of swill is looked upon with satisfaction by all progressive health authorities, and is the true solution of the problem. This Board most decidedly recommends the establishing of such a plant, even though it should mean an increased appropriation, and collections by the city teams.

Judging from the number of complaints received, the work of collecting during the past year has been an improvement over those preceding, and has given better satisfaction. The work is necessarily enlarging every year, and the time is not far distant when it will be advisable to have not only the house-offal, but the night-soil and ashes collected and taken care of by the city through its Health Department.

Malaria.

Apparently there has been no diminution in this disease since our last report. The Charles River has evidently been the trunk line whereby the disease has reached us, and as every brook but one that we have in Newton empties into this river, we do not have to look far to find the branches which have conveyed this very disagreeable miasm to all parts of the city. Its appearance on Chestnut Hill some years ago would seem to be due to its being brought down through the aqueducts to the reservoir, as at that time it was very prevalent in Framingham.

Probably no place in the state has become so popular for boating purposes as the Charles River between Moody street bridge in Waltham, and Newton Lower Falls, yet the shores of this beautiful stream are becoming so obnoxious in the extreme warm weather, when the water is low, that unless something can be done to improve their condition this health-giving recreation will be driven away in the near future. In addition to this, many of those intending to become citizens have been deterred from doing so by the reports that come to them. Much of the trouble is undoubtedly caused by the alternate raising and lowering each day, of the water in the river by the Boston Manufacturing Co., in Waltham.

In the fall a strong petition was presented to this Board describing the condition of the river and attributing much of the existing malaria to this cause. The remedy suggested for the present was the lessening of the use of the water in dry times by the Boston Manufacturing Co., through the introduction of steam into their works. A careful study of the legal, as well as the physical, aspects of the case have led to the following conclusions:—That not only Newton but all the other towns affected along the river are interested in this question; that no one local board can handle it alone, nor can the State Board of Health, and it is doubtful if all the Boards combined can do so under existing laws; that in

consequence it is not only desirable, but essential that additional legislation be obtained.

Bullough's Pond and vicinity has been the source of much malaria, and the Board would be only too glad to improve the district if the means were placed at its disposal.

Night-soil.

The work of removing night-soil or contents of cess-pools has been more promptly and efficiently done than ever before. But few complaints have been received relative to this work, and all requests from this Board for immediate attention to work have been complied with. The greatest trouble has been that our citizens have frequently put off emptying their cess-pools until they began to overflow, and were then disappointed if they could not get the teams there at an hour's notice.

The contract which existed with Mr. Mague expired in June, and as the conditions of the old one were satisfactory to both parties it was renewed for another three years.

The introduction of sewers, however, will render this work much less remunerative, and undoubtedly upon the expiration of the present contract, the city will either be obliged to take charge of the work, or the price per load for removal will have to be increased. Suitable places for depositing such material are few and far between, and it is a question if it would not be advisable to adopt the first mentioned plan, and if possible, provide a crematory in conjunction with one for house-offal. Citizens have frequently advocated and even requested the Board to have its own plant and do the work itself, and there certainly would not be much opposition to such a step.

Plumbing.

During the year some two hundred houses have been erected in the city, and the plumbing of these has been examined, in some cases seven or eight visits being made before

the work was finished. In order to keep up with the advances which have been made in this branch of sanitary science as well as others, it has been found advisable to revise the regulations, and a new code will be presented for your consideration early in the year.

Each year the demand for inspections and tests of the plumbing in old houses increases and many more of such inspections have been made during the year than ever before. It is the same history of filthy pan-closets, which ought to be ordered out whenever found, defective traps or no traps at all perhaps, and lead drip trays, and seats saturated with urine and slops. Many people begin to feel indignant when they find an inspector desires to ascertain if their pan-closet is foul or not, and are perfectly astounded when shown its true condition.

Outside of the Cottage Hospital, perhaps the two most important inspections were those made at Lasell Seminary, and the Pine Farm School. At the former institution, several defects were found, although the plumbing was supposed to be in first-class condition. Carelessness on the part of the servants had allowed some of the fixtures to get into bad shape. All of these troubles were promptly remedied upon the request of our Agent. Some of the minor improvements which he suggested have also been adopted, while others have been laid over to the future. One recommendation of the Agent for the improvement of the sanitary condition of the school was a very important one, and if adopted, will place Lasell far beyond any similar institution, that we are aware of, in this country, and that is the erection of a sanitary tower. We hope the officials in charge will see their way clear to adopt the recommendation.

At the Pine Farm School some very disagreeable things were found, and many changes were recommended by the Agent. While some of these have been carried out, yet there are others that ought to be. While some of the Directors

are alive to the situation, others seem to feel that these boys do not need all the "conveniences" as they are termed, which have been introduced into sanitary matters. These Directors may yet be brought to a change of opinion, and it is to be hoped before any serious results shall happen.

The report of the Agent recommending improvements at the High School was approved and forwarded to the School Committee for their action.

Rabies--Hydrophobia.

In January, notice was received from the State Cattle Commission that all laws relative to contagious diseases among domestic animals were to include rabies among dogs. The rules and regulations prepared by them were immediately published as required by law, in the Newton papers. Scarcely had this notice been promulgated, when a suspected case was reported to the Board by the owner of the dog. Strict directions were given to keep the dog in close confinement until he could be examined by competent authority. The attendant, however, was careless, and the dog made his escape, being headed towards the Charles River when last seen. As no farther trace of him has ever been found, it is supposed that he ventured out on the thin ice, broke through and was drowned.

Several cases of what is termed street rabies were observed by the police department, and were promptly killed, but not reported to the Board. One case, however, was attended with fatal results. A boy at Oak Hill was bitten by one of these wandering curs, no particular attention being paid to the fact. Unfortunately, the poison of the rabies was transferred through the wound to the blood of the boy, and rapidly working through the system, caused that most terrible of deaths, hydrophobia.

As one step towards improving the quality of the dogs that may be licensed, and thus diminishing in a slight degree,

sanitary science. The preliminary work has been done, and they are now in the hands of the City Solicitor for his revision. It is hoped that they will be adopted in season to be printed in conjunction with this report.

the liability to rabies, this Board would most respectfully recommend to your honorable body, that the dog tax be increased to the utmost limit allowed by statute law.

Rules.

The rules and regulations of this Board have needed some changes, but they had not been such as would warrant the expense of a complete revision. The introduction of sewerage, however, necessitated new rules, and it has been thought advisable in this connection to give the entire set of regulations much time and study so as to bring them into line with the extensive advances that have been made in

Sewerage.

The construction of the sewerage system is being pushed ahead as rapidly as possible. Many difficulties have been encountered, but as soon as the Metropolitan Commissioners have finished the trunk line, many of our sewers can be immediately connected therewith, and the work of putting in the house connections carried forward much more rapidly. The old cess-pool can then be thoroughly emptied, disinfected, and filled up, and many of the troubles to which our citizens are subjected will be done away with. It is thought that the Metropolitan system will be ready about the middle of April, so that we may reasonably expect to have some of our sewers in use by the first of May.

Sterilized Milk.

About the first of March, this Board suggested to the City Council the advisability of establishing a depot for the sale of sterilized milk. The following communication from Dr. D. E. Baker was also sent, setting forth the reasons for this recommendation.

To the Honorable City Council of the City of Newton :

*Gentlemen :—*The composition of milk peculiarly adapts it to the development of the micro-organisms of putrefaction and disease. Cholera Infantum and the various summer diarrhœas are largely disseminated in this way.

It has been shown by scientists that milk may be preserved a long time and rendered innocuous by destroying the contained germs by heat and then hermetically sealing the flasks so sterilized. Many cities and towns have given this matter attention, and in Hamburg, Germany, a station for the production and sale of sterilized milk has been for some time in successful operation.

Investigations as to the best and most economical methods of securing germ-free milk are in progress at the New Zealand Kitchen on Pleasant Street, Boston, and also at the Mass. Institute of Technology.

The summer diseases of children may be largely prevented and also successfully treated by the use of such milk.

It is hoped that your honorable body will give the subject careful consideration with a view to the establishment of a station in connection with some first-class dairy, for the securing of such an article. It is as a preventative measure that the Board of Health recommends this measure, but there are other aspects of the question apparent to anyone, that equally make it desirable to secure such a station.

This milk is now for sale at Theodore Metcalf's pharmacy in Boston, at the price of thirty cents a pint, which price excludes it from poor families. The Orange County Milk Association of New York furnish an evaporated milk which costs less, and it is hoped that the product may soon be secured at a price but slightly in advance of that for the crude article. The outlay for the necessary appliances varies somewhat with the method adopted, but in any case will be small in comparison to the resulting benefits.

Respectfully submitted,

(SIGNED)

DAVID E. BAKER,

Physician of the Board of Health.

P. S. Dr. S. W. Abbott, Secretary of the State Board of Health, writes me that this is a practical and needed reform.

(SIGNED)

D. E. BAKER.

Unsterilized milk is rarely less than thirty hours old before reaching the consumer, and when the conditions which govern the care of that milk, from the time of production to its use are considered, it is easy to understand one cause of the necessity existing for an improvement in the supply. In warm weather, the decomposition and putrefaction of the micro-organisms are much more rapid unless retarded by the milk being kept constantly on ice. In many of our poorer families, the use of ice cannot be afforded, and it is here where the greatest mortality from cholera-infantum occurs. Cholera-infantum alone causes nearly four per cent. of the entire mortality of the city, there having been thirteen deaths from this cause last year. Knowing that this mortality can be greatly diminished by the general use of sterilized milk, this Board most respectfully renews its recommendations to the City Council of last year for the establishment of a depot for the sale of milk that has been sterilized.

Ventilation.

No greater question than the proper ventilation of our school-houses and public buildings could be brought to the attention of this Board. The Legislature of 1890 so amended the law of 1888 which required the Inspectors of factories and public buildings to enforce its provisions, as to give to any person or corporation aggrieved by the orders of such inspectors, the right to appeal to the Local Board of Health. Due consideration ought to be given to the opinions of the State Inspectors as they are really experts on such questions, and if the right to appeal is to lie anywhere, it should be to the State Board of Health, rather than to the local. We trust this Board will never be called upon to decide in such a matter between the city and the State.

Several complaints having been made about the ventilation of the Rice School, an examination was made by our Agent who submitted the following report:—

To the Board of Health, Newton:

Gentlemen.—Complaints have been made to me by various parties at Newton Centre relative to bad ventilation at the Rice School, Newton Centre. It has been noticed to the largest extent, if not entirely, in Miss Martin's room and in the entries. Miss Martin tells me that at times the warm air delivered into her room has a bad odor, and the air of the room becomes badly vitiated.

I have made several investigations and each time I have been firmly convinced that the trouble originates in the cellar. Friday afternoon, November 6, I obtained the services of the janitor after the close of school, and made an experiment to demonstrate if possible the correctness of my belief.

He sprinkled a small amount of peppermint around on the floor of the cellar and also on the walls, none of it being nearer than seven or eight feet to the box containing the heater for the air passing into Miss Martin's room. In not over three minutes, Miss Martin, without knowing what had been done, readily detected the odor of peppermint coming through her hot air register, and in five minutes the peppermint could be detected all over the room and in the entry. I think that this clearly shows that the cellar air is constantly being drawn into the fresh air supply, and as the boys urinal and water-closets are situated in the cellar by the side of this heater, it is easy to understand what the cause of the bad odor has been.

What is true of Miss Martin's system of heating in a large degree, is also true of the other rooms in a much less degree.

The boxes supplying fresh air to the heating coils are made of matched boards, but these are subject to shrinkage, and as a matter of fact, many of the joints have large openings in them. The boxes around the heating coils also have large augur holes in them left open. A strong suction of foul cellar air is thus constantly being drawn into the supply of fresh air and delivered into the school-rooms.

If I am correctly informed it was in the room occupied by Miss Martin that two of the scholars who have recently been ill with scarlet fever, were taken sick with vomiting while occupying their seats.

I have therefore felt it my duty to lay these facts before the Board for such action as may seem best.

Very respectfully,

W. S. FRENCH,

Agent of Board.

This report was approved and forwarded to the School Committee for appropriate action, and we believe a communication from them is now in the hands of the Public Property Committee.

The report of the Agent relative to the High School, also forwarded to the School Committee, embraced some recommendations for improvements in ventilation of the sanitariums.

The most important work in ventilation during the year was that at the Underwood School. For several years, complaints had been made that the ventilation of the rooms was bad, and some attempt had been made to remedy the trouble but without success. Several plans were presented to the committee and the one proving the most acceptable was that presented by Daniel P. Gosline. This plan with modifications suggested by J. H. L. Coon, State Inspector of Public Buildings, Alderman Sheppard of the Public Property Committee, and City Engineer Noyes, was adopted and the contract given to Mr. Gosline. The following description of the work is taken from the report of the Chief of the District Police for the year 1891:

“This structure is of wood, two stories high, having four school-rooms, two staircases and the necessary wardrobes, with a large store-room on each floor. Of all the buildings wherein a system of warming and ventilation has been adopted, none have secured so complete and positive results under any condition of weather as in the Underwood School. The apparatus was designed and put in by D. P. Gosline. The building was formerly warmed by furnace

heat and ventilated by natural means, which consisted of small tin ducts running from each room to a ventilator in the roof. These were of little use, having no power within to create circulation and remove vitiated air. Heretofore there has been much sickness among the pupils, caused by the defects in the ventilation. All furnaces, every duct and register, including the ventilating pipes, were removed from the building, and an entire new mechanical apparatus, operated by steam, substituted therefor.

In the basement is provided a brick chamber about nine feet square, within which is located the steam radiators, divided in sections with independent valves, so that any part thereof or the whole surface may be heated if necessary. The cold-air ducts, two in number, are of galvanized iron, of sufficient size, and enter the brick chamber at its base. The sectional boiler as shown thereon is estimated at thirty-four horse-power, and thus far has proved to be very economical in the consumption of coal. The warm-air ducts are of galvanized iron, each having an area of about five square feet, so that the air can be admitted to each class-room at the inner wall, about eight feet above the floor, in large volume at a moderate velocity. Cold-air mixing valves, with indicators on the wall nicely adjusted, are so located that each teacher has control of the temperature of her room.

The exhaust ducts are about the same in area as the air-supply ducts, and are also of galvanized iron. These lead from the base of the room at the inner wall to the attic, where they converge into one chamber, in which and above the ducts is located a forty-eight inch Blackman fan. Below the steam radiators in the heating chamber in the basement is located a forty-two inch fan of the same pattern. Both these fans are operated by a vertical shaft running from the basement to the attic, and propelled by a Tuerk water motor. They are kept in motion during the sessions of the school. The noise of the motor is reduced to a minimum, and in no

way interferes with the work of the pupils.

The indirect heat can be re-enforced if necessary in extreme cold weather by the use of radiators placed at the outer wall of each class-room. It is not expected that they will be needed, but they are provided as a precaution. The corridors are heated by direct radiation.

The apparatus, as located and run in this building, will supply, properly circulate and exhaust, without any perceivable draft, the maximum volume of air alleged by the best sanitary experts of the world to be necessary for perfect ventilation in a school-room, namely, a supply of sixty cubic feet per minute per pupil; and, as now adjusted, is supplying to each pupil over fifty cubic feet of air per minute, allowing fifty persons to a room. The whole arrangement in the building is simple in design, effective in its operation, and stands as a monument of what can be accomplished in the ventilation of a school-house.

The work has proved to be capable of all demands made upon it, and stands as a model in the results obtained.

Mass. Association.

On the 29th of April, some of the most eminent sanitarians in the state paid our city a visit upon the occasion of the quarterly meeting of the Mass. Association of Boards of Health, that association having been invited to hold its meeting here at that time. Previous to the meeting, many of them visited various points of interest, as the new reservoir, the Cottage Hospital, etc., passing through many of the villages. Many encomiums were heard and some criticisms made, especially about our dumps, several of which were noticed.

The topic under discussion was the care and prevention of contagious diseases, the essay for the occasion being prepared by Dr. J. H. McCollom, City Physician of Boston, and was a very able presentation of facts obtained from the ex-

perience of that city. At its close a very general discussion ensued, and many new facts and experiences brought out. It was a very interesting and useful meeting, and the Association as it grows is bound to wield a powerful influence in sanitary matters throughout the state.

Acknowledgments.

It is with great pleasure that the Board acknowledges the many courtesies received from His Honor, the Mayor, the members of the City Council, the heads of the various departments and many others.

Respectfully submitted,

WM. S. FRENCH,

Clerk.

PUBLIC IMPROVEMENTS AND OTHER STATISTICS.

Population, Estimated,	25,438
Death rate per 1,000 in 1891	14.66
Area of city in acres	11,600
Area of parks in acres	60
Gas, miles of mains laid	59
Gas, capacity of holders in cubic feet	370,000
Lights, number of electric { arc 79 incandescent 440	519
Lights, number of gas	803
Lights, number of oil	173
Number of churches	36
Number of dwellings	4,700
Number of volumes in public libraries	39,500
Number of public schools	22
Number of pupils attending	4,093
Number of teachers	115
Number of private schools	20
Railways, miles of steam	12.5
Railways, number of stations	14
Railways, miles of street	8
Streets, average width of main	50 to 70 ft.
Streets, miles of accepted	114.26
Streets, miles of unaccepted	55.04
Streets, miles of graveled	108
Streets, miles of macadamized	61

Streets, miles of concrete sidewalks . . .	50
Streets, miles of gravelled sidewalks . . .	70
Telephones, number of, in use by citizens . .	400
Telephones, number of, controlled by city . .	53
Water, capacity of reservoirs in gallons . .	25,000,000
Water, daily average consumption in gallons .	1,067,294
Water, daily pumping capacity of engines in gallons	10,000,000
Water, number of fire hydrants . . .	676
Water, number of services in use . . .	4,705
Water, number of meters in use . . .	3,269
Water, number of miles of main laid . . .	102
Water, number of standpipes for street watering	66

COMPARATIVE VIEW OF CASES OF DIPHTHERIA, SCARLET FEVER, AND TYPHOID FEVER IN NEWTON,
AS REPORTED MONTHLY DURING THE LAST SEVEN YEARS. TOGETHER WITH RAINFALL.

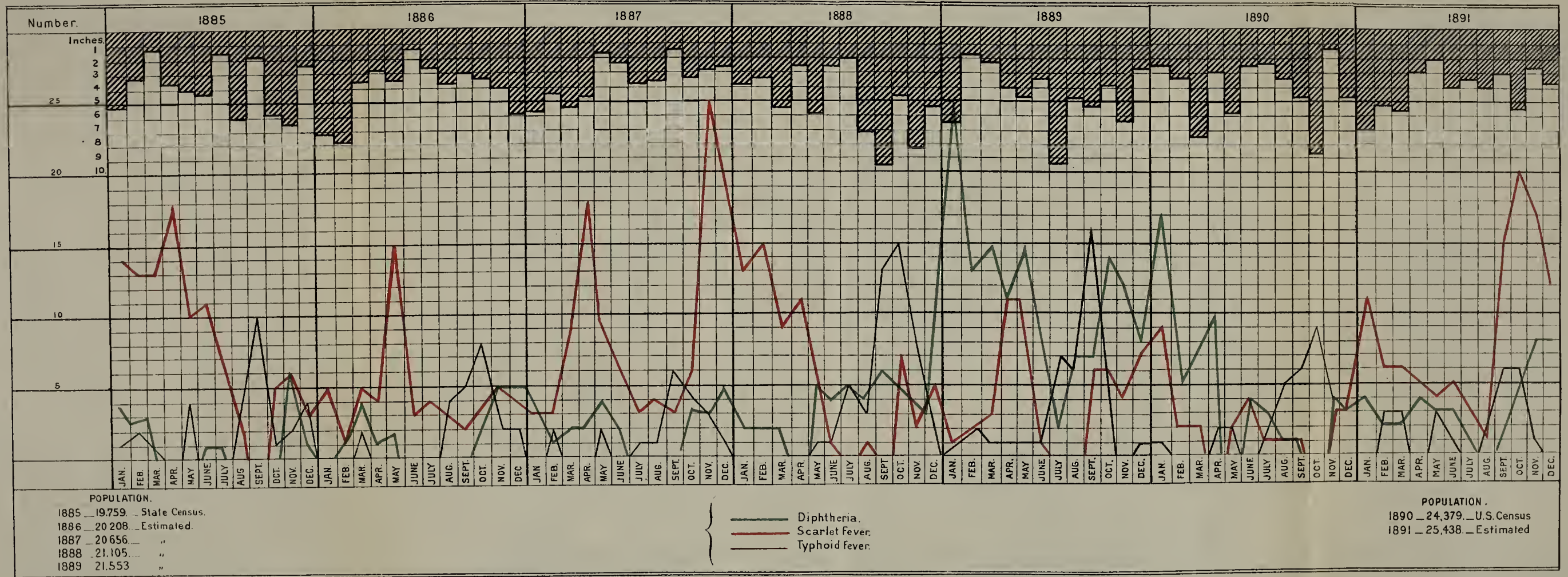
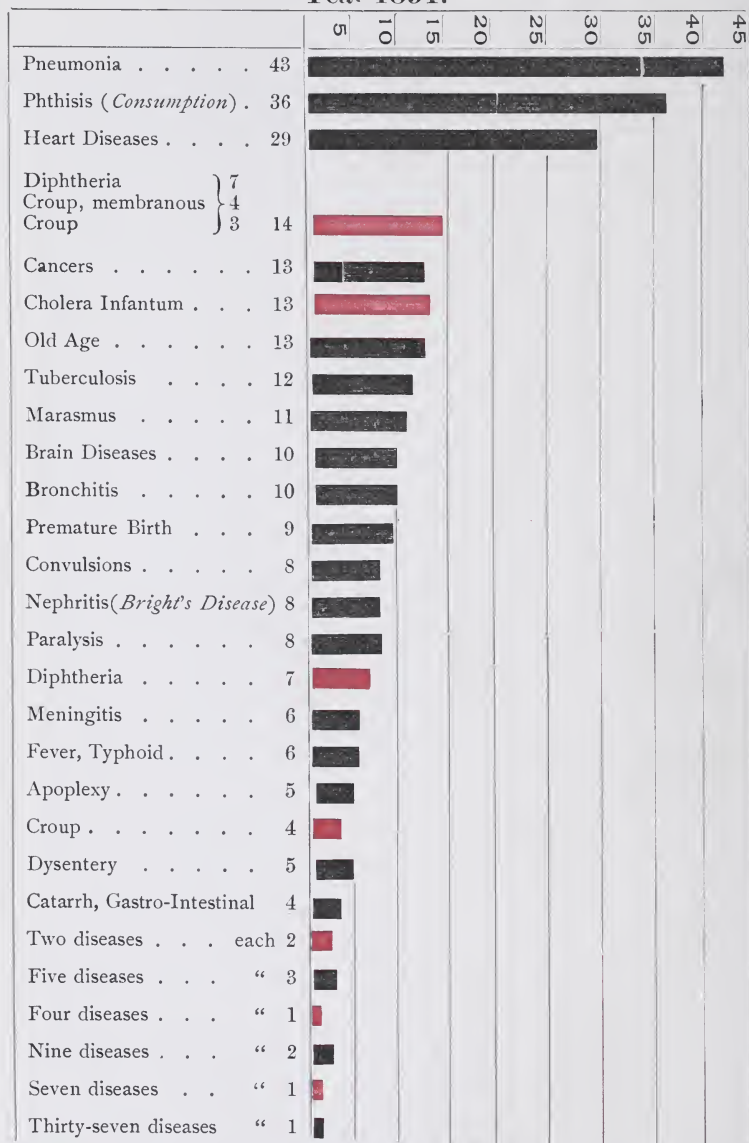


TABLE I.
Statement of Deaths by Months in each Ward.*

WARDS.	1		2		3		4		5		6		7		Total.		Aggre- gate.
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
January .	1	..	5	2	2	3	..	3	1	3	4	4	..	3	13	18	31
February .	3	..	1	1	..	3	2	2	2	3	1	1	..	..	11	10	21
March .	2	6	1	4	1	3	4	2	6	..	3	3	2	..	19	18	37
April .	2	3	2	6	4	..	1	6	..	5	1	1	1	3	12	24	36
May .	1	2	..	5	1	..	..	4	3	2	2	2	1	2	8	15	23
June .	2	1	..	4	1	2	1	1	1	2	..	..	..	3	4	14	18
July .	2	3	2	4	5	1	2	6	2	3	5	2	..	..	18	19	37
August .	1	3	5	6	2	3	3	1	5	1	2	1	1	2	19	17	36
September .	4	1	3	3	4	3	6	2	1	2	2	2	2	..	22	11	33
October .	1	..	7	3	..	2	4	1	3	2	3	3	1	..	19	11	30
November .	1	5	2	3	3	3	4	2	1	2	1	1	1	1	13	19	32
December .	4	2	3	5	2	2	4	5	5	2	1	2	1	1	20	19	39
Totals .	24	26	31	46	24	25	31	35	30	25	28	23	10	15	178	195	373
Aggregate .	50		77		49		66		55		51		25		373		

* Deaths at Cottage Hospital are distributed to Wards as much as possible.

TABLE II.
Comparative View of the Causes of Death during the Year 1891.



Deaths from Zymotic Diseases.

Deaths from Other Diseases.

TABLE III.
Causes of Death in each Month as Registered by the
City Clerk, Arranged Alphabetically in Classes.

DISEASES.	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.	TOTAL.
I. ZYMOTIC.													
Alcoholism	-	1	-	-	-	-	-	-	-	-	-	-	1
Blood poisoning —carbuncle	-	-	-	-	-	-	-	1	-	-	-	-	1
Cholera Infantum	-	-	-	-	-	-	6	5	-	2	-	-	13
Cholera Morbus	-	-	-	-	-	-	-	1	-	-	-	-	1
Croup	-	1	1	-	-	-	1	-	-	-	1	-	4
Croup, Membranous	-	-	-	1	-	-	-	-	-	1	-	-	3
Diarrhœa	-	-	-	-	-	-	-	-	-	-	1	1	2
Diphtheria	-	-	-	-	-	-	1	-	-	2	3	1	7
Dysentery	1	-	-	-	-	-	-	2	1	-	-	-	4
Dysentery, Typhoid	-	-	-	-	-	-	-	-	1	-	-	-	1
Erysipelas	-	1	2	-	-	-	-	-	-	-	-	-	3
Fever, Scarlet	1	-	-	-	-	-	-	-	-	1	-	-	2
Fever, Typhoid	-	-	2	-	-	-	-	-	2	2	-	-	6
Gangrene—mouth and throat	-	-	-	1	-	-	-	-	-	-	-	-	1
Hydrophobia	-	-	-	-	-	-	-	1	-	-	-	-	1
Influenza (La Grippe)	-	-	-	-	-	-	-	-	-	-	-	3	3
Meningitis, Cerebro spinal	-	-	-	-	-	-	1	1	-	-	-	-	2
Metric-Peritonitis	-	-	-	1	-	-	-	-	-	-	-	-	1
Purpura Hemorrhagica	-	-	-	-	-	-	-	-	-	1	-	-	1
II. CONSTITUTIONAL.													
Anæmia	-	-	1	-	-	-	-	-	-	-	1	-	2
Cancer of Cæcum	-	-	-	-	-	1	-	-	-	-	-	-	1
Cancer, Intestinal	-	-	-	-	-	-	-	-	-	-	1	-	1
Cancer of Liver	1	-	-	-	-	-	-	-	-	-	-	-	1
Cancer of Lungs	-	-	-	-	-	-	1	-	-	-	-	-	1
Cancer of Oesophagus	-	-	-	-	-	-	1	-	-	-	-	-	1
Cancer of Omentum	-	-	-	-	-	-	1	-	-	-	-	-	1
Cancer of Pancreas	-	-	1	-	-	-	-	-	-	-	-	-	1
Cancer of Peritoneum	-	-	-	-	-	-	-	-	1	-	-	-	1
Cancer of Rectum	-	-	1	-	-	-	-	-	-	-	-	-	1
Cancer of Stomach	-	-	-	1	-	-	-	-	-	1	-	-	2
Cancer (not stated)	-	-	-	1	1	-	-	-	-	-	-	-	2
Caries, Tubercular Spinal	-	-	-	-	1	-	1	-	-	-	-	-	1
Hydrancephalocele	-	-	-	1	-	-	-	-	-	-	-	-	1
Hydrocephalus	-	-	-	-	-	-	-	1	-	-	-	-	1
Leukæmia	-	-	-	-	-	-	-	-	1	-	-	-	1
Marasmus	-	-	-	1	-	-	1	-	4	3	1	1	11
Meningitis Tubercular	-	-	1	-	-	-	-	-	-	-	-	-	1
Phthisis (Consumption)	5	-	7	2	2	-	4	2	4	4	5	1	36
Rheumatism	-	-	1	-	-	-	-	-	1	-	-	-	2
Tuberculosis	1	1	-	1	1	2	-	1	2	-	1	2	12
III. LOCAL.													
NERVOUS.													
Apoplexy	-	-	2	1	-	-	1	-	-	-	-	1	5
Brain, Disease of	-	-	-	-	-	-	-	-	-	1	-	-	1
Brain, Embolism in	-	-	-	-	-	-	-	-	1	-	-	-	1
Brain, Hemorrhage of	-	2	1	-	1	-	-	-	1	-	1	1	7
Brain, Paralysis of	-	-	1	-	-	-	-	-	-	-	-	-	1
Convulsions	1	1	-	-	1	-	3	-	1	-	1	-	8
Epilepsy	-	-	-	1	-	-	-	-	1	-	-	-	2
Meningitis	-	2	-	-	-	-	1	1	-	1	-	1	6
Myelitis	-	-	1	-	-	-	-	-	-	-	-	-	1
Paralysis	1	3	-	-	-	1	1	-	-	1	1	-	8

TABLE III.—Continued.

DISEASES.	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.	TOTAL.
NERVOUS, Continued.													
Sciatica	-	-	-	-	-	-	-	1	-	-	-	-	1
Tetanus	-	-	-	-	-	-	1	-	-	-	-	-	1
CIRCULATORY.													
Angina Pectoris	-	-	1	1	-	-	-	-	1	-	-	-	3
Heart, Disease of . . .	2	-	1	4	5	-	2	2	2	-	2	1	21
Heart, Dropsy of . . .	-	-	-	-	-	-	-	-	1	-	-	-	1
Heart, Enlargement of .	-	-	1	-	-	-	-	-	-	-	-	-	1
Heart Failure	-	-	-	-	1	-	-	-	-	-	-	-	1
Heart, Fatty degeneration of	-	-	-	-	-	-	1	-	-	-	-	1	2
Heart, Hypertrophy of .	1	-	-	-	-	-	-	-	-	-	-	-	1
Heart, Malformation of .	-	-	1	-	-	-	-	-	-	-	-	-	1
Heart, Mitral Stenosis of	-	-	-	-	1	-	-	-	-	-	-	-	1
Pericarditis	1	-	-	-	-	1	-	-	-	-	-	-	2
RESPIRATORY.													
Bronchitis	2	1	-	-	-	1	1	-	-	2	1	2	10
Congestion, Bronchial .	1	-	-	-	-	-	-	-	-	-	-	-	1
Congestion, Pulmonary .	1	-	-	-	-	-	-	-	-	-	2	-	3
Emphysema	-	-	1	-	-	-	-	-	-	-	-	-	1
Lungs, Congestion of .	-	-	1	-	-	-	-	1	-	-	-	1	3
Edema, Pulmonary . . .	-	1	-	-	-	-	-	-	-	-	-	-	1
Pneumonia	5	3	5	8	5	4	-	-	1	1	2	9	43
DIGESTIVE.													
Bowels, Inflammation of .	-	-	-	-	-	-	-	1	-	-	-	-	1
Bowels, Intussusception of	-	-	-	1	-	-	-	-	-	-	-	-	1
Catarrh, Gastro-Intestinal .	-	-	-	-	-	-	2	1	-	-	1	-	4
Enteritis	-	-	-	-	-	-	1	-	-	-	-	-	1
Entero-Colitis	-	-	-	-	-	-	-	1	-	-	-	-	1
Gastro-Enteritis	-	-	1	-	-	-	-	-	-	-	-	-	1
Hepatitis	-	-	-	-	-	-	-	1	-	-	-	-	1
Intestinal Obstruction .	-	-	-	-	-	-	-	-	-	-	1	-	1
Liver, Atrophy of . . .	-	-	-	-	1	-	-	-	-	-	-	-	1
Liver, Cirrhosis of . . .	1	-	-	-	-	-	-	-	-	-	-	-	1
Peritonitis	-	-	-	-	-	-	-	1	-	1	-	1	3
Stomach, Paralysis of . .	-	-	-	-	-	1	-	-	-	-	-	-	1
Stomach, Ulcer of . . .	-	1	1	-	-	-	-	-	-	-	-	-	2
Stomatitis	-	-	-	-	-	-	1	-	-	-	-	-	1
MISCELLANEOUS.													
Albuminuria	-	-	-	-	-	-	-	-	-	-	-	1	1
Cystitis	-	-	-	-	-	-	-	-	-	-	-	1	1
Diabetes	-	1	-	-	-	-	-	-	1	1	-	-	3
Kidneys, Abscess of . . .	-	-	1	-	1	-	-	-	-	-	-	-	2
Nephritis (Bright's Disease)	2	-	1	-	-	1	-	-	-	-	2	2	8
IV. DEVELOPMENTAL.													
Asthenia	-	-	-	-	-	-	-	-	-	-	1	-	1
Inanition	-	-	-	-	-	-	-	2	-	-	-	-	2
Mal-nutrition	-	-	-	-	-	-	-	1	1	-	-	-	2
Old Age	1	-	3	2	-	1	-	3	1	-	1	1	13
Premature Birth	1	-	-	2	-	-	1	1	1	2	-	1	9
Teething	-	-	-	-	-	-	-	1	-	-	-	-	1

TABLE III.—Concluded.

DISEASES.	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.	TOTAL.
V. VIOLENT.													
Accident, Pistol Shot . . .	-	-	-	-	-	-	1	-	-	-	-	-	1
Accident, Railroad . . .	-	-	-	-	1	-	-	-	-	-	-	-	1
Asphyxia . . .	-	-	-	-	-	-	-	-	1	-	-	-	1
Drowned . . .	-	-	-	1	-	-	1	-	-	-	-	-	2
Injuries, Internal abdominal . . .	-	1	-	-	-	-	-	-	-	-	-	-	1
Suicide, Hanging . . .	-	-	-	-	-	1	-	-	-	-	-	-	1
Suicide, Poison . . .	-	-	-	-	-	1	-	-	-	-	-	-	1
Suicide, Throat-cut . . .	-	-	-	-	-	-	-	1	-	-	-	-	1
Thigh, Fracture of . . .	-	-	-	-	-	1	-	-	-	-	-	-	1
Umbilical cord compression . . .	-	-	-	-	-	-	-	-	-	-	-	1	1
Vertebra, Dislocation of . . .	-	-	-	-	-	-	-	-	-	1	-	-	1
Unknown . . .	-	-	-	-	1	-	-	-	-	-	-	-	1
SUMMARY.													
Zymotic . . .	2	3	5	3	-	-	9	11	3	10	5	6	57
Constitutional . . .	7	1	9	8	5	4	8	5	13	8	9	4	81
Local . . .	18	15	19	17	16	9	15	10	10	8	14	22	173
Developmental . . .	2	-	3	4	-	1	1	8	3	2	2	2	28
Violent . . .	-	1	-	1	1	3	2	1	1	1	-	1	12
Unknown . . .	-	-	-	-	1	-	-	-	-	-	-	-	1
Total . . .	29	20	36	33	23	17	35	35	30	29	30	35	352
Still born . . .	2	1	1	3	-	1	2	1	3	1	2	4	21
Aggregate . . .	31	21	37	36	23	18	37	36	33	30	32	39	373

TABLE IV.

Deaths During the Year 1891, by Sex, Condition, Color, Nativity, Parentage, and Months.

	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.	TOTAL.
Total Deaths . . .	31	21	37	36	23	18	37	36	33	30	32	39	373
SEX:													
Males	13	11	19	12	8	4	18	19	22	19	13	20	178
Females	18	10	18	24	15	14	19	17	11	11	19	19	196
CONDITION:													
Single	14	6	14	19	12	7	28	24	17	19	17	20	197
Married	11	9	16	12	7	7	7	6	12	8	10	11	116
Widows	5	5	4	5	4	4	1	3	2	1	4	5	43
Widowers	1	1	3	..	..	..	1	3	1	2	1	1	14
Unknown . . . . .	..	..	..	..	..	..	..	..	1	..	..	2	3
COLOR:													
White	31	21	37	36	22	18	37	35	32	30	29	39	367
Colored . . . . .	..	..	..	..	1	..	..	1	1	..	3	..	6
NATIVITY:													
Newton	10	4	7	13	8	5	21	19	13	16	11	13	140
Massachusetts	5	4	10	8	7	6	6	6	4	6	7	13	82
Other States	7	4	10	8	3	4	3	3	5	4	6	4	61
England	1	..	1	1	..	..	2	1	..	..	..	1	7
Ireland	6	5	7	4	2	3	4	5	5	1	6	5	53
Scotland . . . . .	..	1	..	..	..	..	..	1	1	..	..	..	3
Germany	1	..	..	..	..	..	..	..	..	..	..	..	1
British America	1	2	2	1	..	..	..	..	4	1	2	2	15
Other Countries . . . . .	..	1	..	1	2	..	1	..	..	1	..	..	6
Unknown . . . . .	..	..	..	..	1	..	..	1	1	1	..	1	5
PARENTAGE:													
America	18	8	22	18	10	7	10	12	14	14	14	16	163
England . . . . .	..	..	1	1	..	1	2	1	..	1	..	1	8
Ireland	9	5	11	12	5	7	8	12	8	6	10	9	102
Scotland . . . . .	..	..	..	..	..	..	..	1	1	..	..	..	2
Germany . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..
British America	3	2	1	..	3	1	5	1	2	3	2	3	26
Other Countries . . . . .	..	..	..	..	1	..	1	..	..	1	..	..	3
Mixed	1	4	2	4	2	1	11	8	6	5	3	5	52
Unknown . . . . .	..	2	..	1	2	1	..	1	2	..	3	5	17

TABLE V.

Mortality arranged by Classes for the last Seven Years, together with Percentages to Total Mortality and Rate per 1000 Inhabitants.

CLASSES.	1891.			1890.			1889.			1888.			1887.			1886.			1885.		
	Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.	Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.	Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.	Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.	Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.	Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.	Number.	Percentage of Deaths to Total Mortality.	Rate per 1000 Inhabitants.
Zymotic . .	57	15.28	2.24	48	13.56	1.97	70	21.67	3.25	51	14.82	2.42	49	15.26	2.37	34	12.36	1.68	36	13.14	1.82
Constitutional	81	21.71	3.18	61	17.23	2.50	59	18.27	2.74	56	16.28	2.65	51	15.89	2.47	53	19.28	2.62	63	22.99	3.19
Local . .	173	46.38	6.80	174	49.15	7.14	130	40.25	6.03	174	50.58	8.25	138	49.22	7.05	119	43.27	5.89	114	41.61	5.77
Developmental	28	7.51	1.10	42	11.87	1.72	36	11.15	1.67	39	11.34	1.85	37	11.53	1.79	39	14.18	1.93	33	12.04	1.67
Violent . .	13	3.49	0.51	11	3.11	0.45	14	4.33	0.65	10	2.91	0.47	15	4.67	0.73	6	2.18	0.30	10	3.65	0.51
Total . .	352	94.37	13.83	336	94.92	13.78	309	95.67	14.24	330	95.93	15.64	310	96.57	15.01	251	91.27	12.42	256	93.43	12.96
Still born .	21	5.63	0.83	18	5.08	0.74	14	4.33	0.65	14	4.07	0.66	11	3.43	0.53	24	8.73	1.19	18	6.57	0.91
Aggregate .	373	100.00	14.66	354	100.00	14.52	323	100.00	14.99	344	100.00	16.30	321	100.00	15.54	275	100.00	13.61	274	100.00	13.87

TABLE VI.

Total of Deaths, Still-births, and Deaths from Zymotic Diseases, for Seven Years with Percentages.

YEARS.	Total Deaths exclusive of Still-births.	Still-births.	Total Mortality.	Rate per 1000 Inhabitants exclusive of Still-births.	Rate of Still-births per 1000 Inhabitants.	Total Rate per 1000 Inhabitants.	Percentage of Still-births to Total Mortality.	Diphtheria and Croup.	Scarlet Fever.	Typhoid Fever.	Cerebro-Spinal Meningitis.	Whooping Cough.	Measles.	Diarrheal Diseases.	Small-pox.	Other Zymotics.	Total Zymotics.	Percentage of Zymotic Deaths to Total Mortality.	Population.
1891 .	352	21	373	13.83	0.83	14.66	5.63	14	2	6	2	0	0	21	0	12	57	15.28	25,438
1890 .	336	18	354	13.78	0.74	14.52	5.08	10	0	5	0	2	0	22	0	9	48	13.56	37
1889 .	309	14	323	14.34	0.65	14.99	4.33	40	1	13	0	1	0	10	0	5	70	21.67	21,553
1888 .	330	14	344	15.64	0.66	16.30	4.07	10	2	11	1	2	1	16	0	8	51	14.82	21,105
1887 .	310	11	321	15.01	0.53	15.54	3.43	6	1	7	0	0	3	22	0	10	49	15.26	20,656
1886 .	251	24	275	12.42	1.19	13.61	8.73	4	2	6	0	2	0	16	0	4	34	12.36	20,208
1885 .	256	18	274	12.96	0.91	13.87	6.57	3	3	7	0	0	5	12	0	6	36	13.14	19,759

TABLE VII.
Deaths from Zymotic Diseases, with Yearly Percentages to Total Mortality for Seven Years.

	Total Deaths from each Cause.		Deaths per 1000 Inhabitants.		Total Deaths by Sex under Five Years.		Total Deaths under Five Years.		Percentages of each cause under Five Years to Total Mortality.		Percentage of each cause to Total Mortality.						
	M.	F.	M.	F.	M.	F.	M.	F.			1891.	1890.	1889.	1888.	1887.	1886.	1885.
Alcoholism	1		0.04								.27	.28	.31		.31	.73	.36
Cholera Infantum	13		0.51		5	8		7	3.22		3.49	4.52	2.89	2.33	4.36	4.36	3.28
Cholera Morbus	81		0.04			1					.27	.28					
Croup	7		0.28		2	5		5	1.88		1.88	.57					
Diarrhoea	2		0.08		2						.53	.85	.31	.58	.62	.36	.36
Diphtheria	7		0.28		1	6		1			1.88	2.26	8.98	2.33	.31	1.46	.36
Dysentery	5		0.19		1	4		2	.53		1.34	.57		1.16	2.49	1.09	.73
Erysipelas	3		0.12		3						.80						
Fever, Malarial . . . . .												.28		.29	.31		.36
Fever, Scarlet	2		0.08			2		1	.27		.53		.31	.58	.31	.73	1.10
Fever, Typhoid	6		0.23		4	2					1.61	1.41	4.02	3.20	2.18	2.18	2.56
Influenza	3		0.12			3					.80	.57					
Measles																	
Meningitis, Cerebro-spinal	2		0.08		1	1		1	.27		.54			.29	.94		1.83
Purpura Hem.	1		0.04			1					.27			.29			
Pyæmia . . . . .												.28	.31	.29			
Septicæmia . . . . .												.85	.31	.58		.36	
Whooping Cough . . . . .												.57	.31	.58		.73	
Other Causes	4		0.15		3	1					1.07				.94	.36	1.11
Total	57		2.24		23	34		16	6.70		15.28	13.57	21.67	14.82	15.26	12.36	13.14

TABLE VIII.—Deaths from Eighteen of the Principal Causes.

	Total Deaths from each cause.	Percentage of each cause to Total Mortality.	Deaths per 1000 Inhabitants.	Total Deaths by Sex.		Total Deaths by Sex under five years.		Total Deaths under five years.	Percentage of each cause under five years to Total Mortality.
				Male	Female	Male	Female		
Pneumonia	43	11.53	1.69	20	23	7	2	9	2.41
Phthisis (Consumption)	36	9.65	1.41	15	21	..	..	..	..
Heart Diseases	29	7.77	1.14	13	16	3	3	6	1.61
Diphtheria	7								
Croup	4								
Croup, membr.	14	3.75	0.55	3	11	3	6	9	2.41
Cancers	13	3.48	0.51	5	8	..	..	..	..
Cholera Infantum	13	3.48	0.51	5	8	5	7	12	3.22
Old Age	13	3.48	0.51	4	9	..	..	..	..
Tuberculosis	12	3.22	0.47	7	5	1	..	1	.27
Marasmus	11	2.95	0.43	8	3	7	3	10	2.68
Brain Diseases	10	2.68	0.39	6	4	1	..	1	.27
Bronchitis	10	2.68	0.39	6	4	2	1	3	.80
Premature Birth	9	2.41	0.35	6	3	6	3	9	2.41
Convulsions	8	2.14	0.31	6	2	6	1	7	1.88
Nephritis (Bright's Disease)	8	2.14	0.31	3	5	..	..	..	..
Paralysis	8	2.14	0.31	4	4	..	..	..	..
Diphtheria	7	1.88	0.28	1	6	1	1	2	.53
Meningitis	6	1.61	0.23	5	1	4	1	5	1.34
Fever, Typhoid	6	1.61	0.23	4	2	..	..	..	..

TABLE IX.

Total Number of Deaths under Five Years, and Five Years and over, for Seven Years, with Percentages to the Total Mortality.

YEARS.	Total Deaths exclusive of Still-births.	Five Years and over.	Under Five Years.	PERCENTAGES.	
				Five Years and over.	Under Five Years.
1891 . . .	352	254	98	72.16	27.84
1890 . . .	336	244	92	72.62	27.38
1889 . . .	309	223	86	72.17	27.83
1888 . . .	330	248	82	75.15	24.85
1887 . . .	310	218	92	70.32	29.68
1886 . . .	251	179	72	71.32	28.68
1885 . . .	256	199	57	77.74	22.26

TABLE XI.—Statement of cases of Diphtheria, Scarlet Fever, Typhoid Fever, and Cholera Infantum by Months in each Ward.

MONTHS.	DIPHTHERIA.							SCARLET FEVER.								
	Ward One.	Ward Two.	Ward Three.	Ward Four.	Ward Five.	Ward Six.	Ward Seven.	Total.	Ward One.	Ward Two.	Ward Three.	Ward Four.	Ward Five.	Ward Six.	Ward Seven.	Total.
January, .	1	1	..	..	..	1	1	4	1	..	1	1	..	6	2	11
February, .	..	..	..	1	..	..	1	2	2	1	1	2	..	..	..	6
March, .	1	1	..	..	..	..	..	2	..	3	..	2	..	1	..	6
April, .	1	1	..	1	..	..	1	4	2	..	1	1	..	..	1	5
May, .	2	..	..	..	..	1	..	3	1	..	1	..	1	..	1	4
June, .	1	..	..	..	1	1	..	3	..	..	..	..	1	4	..	5
July, .	..	..	..	..	..	1	..	1	..	..	2	..	..	1	..	3
August, .	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1
September, .	..	2	..	..	..	..	..	2	1	..	14	..	..	..	..	15
October, .	..	2	..	2	1	..	..	5	6	..	2	..	..	12	..	20
November, .	1	2	1	..	4	..	..	8	1	6	..	..	2	8	..	17
December, .	3	1	2	..	1	1	..	8	5	..	1	..	..	3	3	12
Total, .	10	10	3	4	7	5	3	42	19	10	24	6	4	35	7	105

TABLE XI. — Concluded.

MONTHS.	TYPHOID FEVER.							Total.	CHOLERA INFANTUM.							Total.
	Ward One.	Ward Two.	Ward Three.	Ward Four.	Ward Five.	Ward Six.	Ward Seven.		Ward One.	Ward Two.	Ward Three.	Ward Four.	Ward Five.	Ward Six.	Ward Seven.	
January, .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
February, .	1	..	1	..	..	1	..	3	..	..	..	..	..	..	..	..
March, .	1	..	..	1	..	1	..	3	..	..	..	..	..	..	..	..
April, .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
May, .	..	..	..	..	..	3	..	3	..	..	..	..	..	..	..	..
June, .	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
July, .	..	..	..	..	..	..	..	..	4	1	..	3	1	..	..	9
August, .	..	..	..	..	..	1	1	2	..	..	1	2	1	..	..	5
September, .	1	..	3	..	1	..	1	6	..	..	..	..	..	..	..	..
October, .	..	4	..	..	..	1	1	6	1	..	..	1	..	..	..	2
November, .	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..
December, .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total,	4	4	4	1	2	7	3	25	5	1	1	1	6	2	..	16

TABLE XII. — Cases of Diphtheria, Scarlet Fever and Typhoid Fever reported during the last Seven Years by Months.

MONTHS.	DIPHTHERIA.							SCARLET FEVER.							TYPHOID FEVER.						
	1891. [†]	1890. [†]	1889. [†]	1888.	1887.	1886.	1885.	1891.	1890.	1889.	1888.	1887.	1886.	1885.	1891.	1890.	1889.	1888.	1887.	1886.	1885.
	6	17	25	2	5	..	4	11	9	1	13	3	5	14	0	1	1	..	..	..	1
January,	2	5	13	2	1	1	3	6	2	2	15	3	2	13	3	..	2	..	..	..	1
February,	2	7	15	2	2	4	3	6	3	3	9	9	5	13	3	..	1	..	2	2	2
March,	5	10	11	..	2	1	..	5	..	11	11	18	4	18	0	2	1	..	..	..	1
April,	3	..	15	5	4	2	..	4	2	11	5	9	15	10	3	2	1	..	2	..	4
May,	3	4	7	4	2	..	1	5	4	1	1	6	3	11	1	..	1	1	..	..	..
June,	3	3	2	5	..	..	1	3	1	..	..	3	4	7	0	1	7	5	1	..	..
July,	2	1	7	4	..	..	..	1	1	..	1	4	2	2	2	5	6	3	1	4	3
August, . . . .	..	1	7	6	..	..	..	15	1	6	..	3	1	2	2	6	16	13	6	5	10
September,	2	1	7	6	..	..	..	20	..	6	7	6	3	..	6	9	15	4	1	8	2
October,	6	..	14	5	3	1	..	3	..	4	2	25	5	5	6	9	8	15	4	2	1
November,	8	4	12	4	3	5	6	17	3	6	2	19	4	6	1	4	..	8	3	2	2
December,	9	3	8	3	5	5	1	12	3	7	5	19	4	3	0	4	1	3	1	2	4
Total,	48	55	136	42	27	19	19	105	28	52	69	108	53	102	25	34	42	49	20	23	28
Aggregate, . . .				346																	221
Average,				49																	31

† Including Membranous Croup.

ANNUAL REPORT
OF THE
CHIEF OF FIRE DEPARTMENT
AND OF THE
FIRE AND POLICE TELEGRAPH
OF THE
CITY OF NEWTON.

FOR THE YEAR ENDING DECEMBER 31, 1891.



NEWTON UPPER FALLS:
FANNING PRINTING CO.
1892.

MAYOR :
HON. HERMON E. HIBBARD.

JOINT STANDING COMMITTEE ON FIRE
DEPARTMENT.

Alderman FREDERIC W. CREHORE, Chairman.

Residence, Pine Grove Avenue, Newton Lower Falls.

Alderman ARTHUR F. LUKE.

Residence, Prince Street, West Newton.

Councilman, GEORGE F. RICHARDSON.

Residence, Marshall Street, Newton Centre.

Councilman, ERASTUS MOULTON.

Residence, Walnut Street, Newton Highlands.

Councilman GEORGE F. CHURCHILL.

Residence, Crafts and Clifton Streets, Newtonville.

REPORT

OF THE

CHIEF OF FIRE DEPARTMENT.

HEADQUARTERS FIRE DEPARTMENT, }
 CITY HALL, WEST NEWTON, MASS., }
 December 31, 1891.

To the Honorable, the Mayor and City Council of Newton:

GENTLEMEN:—Agreeable to the ordinance governing this department, I have the honor herewith to submit my thirteenth annual report, and the seventeenth of the present organization.

Fires.

A total of eighty-one calls were answered during the year as follows:

Bell alarms	.	.	.	.	.	.	.	.	.	54
Telephone	.	.	.	.	.	.	.	.	.	13
Verbal	.	.	.	.	.	.	.	.	.	9
Out of city	.	.	.	.	.	.	.	.	.	5

Thirty-one buildings were damaged, and three totally destroyed by fire.

Losses and Insurance.

Losses on buildings	\$10,589	65
Insurance paid	.	.	.	.	.	10,186	65

Loss on contents	\$7,945 50
Insurance paid	7,495 50
Total insurance at risk	117,000 00
Total of property at risk	203,000 00

Manual Force.

I am pleased to report the morale of the entire command as beyond criticism. An increase of the working force, authorized by the City Council has been made as follows:

Drivers	2
Lieutenant Chemical B	1
Foreman Truck 2	1
Assistant Foreman Truck 2	1
Truckmen Truck 2	8

The total manual force being classified as follows:

UNIFORMED AND PERMANENT.

Chief of Department	1
Assistant Chief	1
Engineers of engines	3
Drivers engines and trucks	6
Drivers reels	7
Relief engineer	1
Lieutenant Chemical B	1
Telegraph lineman	1

AT CALL.

Foremen	9
Assistant Foremen	9
Hose and truckmen	48

Grand total 87

Apparatus.

The general condition of the apparatus is reasonably good. A new engine is an imperative necessity at No. 1 Station, and a careful examination of the matter satisfies me that a third-class engine will fully meet the requirements in this district. This should receive early attention. I shall recommend that no outlay be made to our hose reels other than necessary repairs—looking to the introduction of wagons at the earliest opportunity.

NEW APPARATUS.

As authorized by the City Council, the following apparatus has been purchased and added to the equipment:

One third size Babcock aerial truck.

One two-horse fifty gallon Champion chemical engine, being a duplicate of one previously in service.

APPARATUS —(in active service.)

Steam fire-engines	.	.	.	.	.	.	.	3
Hose reels	.	.	.	.	.	.	.	7
Chemical engines	.	.	.	.	.	.	.	2
Aerial truck (Babcock)	.	.	.	.	.	.	.	1
Ordinary truck	.	.	.	.	.	.	.	1

The following additional rolling stock, etc., is part of the equipment:

Chief's wagons	.	.	.	.	.	.	.	3
Chief's sleighs	.	.	.	.	.	.	.	2
Exercise wagons	.	.	.	.	.	.	.	6
Exercise, etc., sleighs (heavy)	.	.	.	.	.	.	.	6

Hose Inventory.

Eighty-eight hundred feet of hose, good, bad, and indifferent, is the sum total of the equipment in this department. Companies one, three, five and six, are fully supplied

with first-class hose, while the remaining companies have outfits of fabric hose fast proving defective from wear and age. The surplus now on hand will hardly meet the requirements, in case of the unexpected. Five hundred and fifty feet of condemned has been turned over to the Water Department. Provision must be made for the purchase of additional hose for 1893. For distribution of the present complement, see inventory list, appended.

Hose Inventory.

STATIONS.	COTTON.		RUBBER.	TOTAL.
	GOOD.	POOR.	GOOD.	
Engine One . .	..	400	850	1,250
Engine Two . .	..	1,400	50	1,450
Engine Three .	1,500	..	50	1,550
Hose Four . .	..	1,400	50	1,450
Hose Five . .	..	..	650	650
Hose Six . . .	..	..	700	700
Hose Seven . .	..	1,100	50	1,150
Chemical A . .	50 2 in.	..	250 1 in.	300
Chemical B . .	50 2 in.	..	250 1 in.	300
Grand Total	1,600	4,300	2,900	8,800

Horses.

Twenty-one horses are required for the moving of apparatus, and for use of the Chief and Assistant Chief. The usual standard has been maintained in this branch of the service, considering the prices paid. The ordinary health of the horses has been exceptionally good, and reflects credit on the employes having them in charge, under the supervision of the Department Veterinarian.

One horse killed (in collision, alarm 71) . . . Chemical A.
One horse died, inflammation bowels . . . Chemical B.
One horse shot, old age . . . Chief Department.

New horses were purchased to replace the above, also for the placing in service of Truck 2, and Chemical B. Radical measures should be adopted for prompt and systematic removal of the stable refuse at all stations. Its accumulation for weeks and even months is decidedly objectionable to those compelled to pass twenty-one hours per day in such surroundings. I would suggest an early solution of this decidedly unpleasant feature.

For details pertaining to condition, etc., of horses, with accompanying recommendations, you are respectfully referred to the report of the Department Veterinarian herewith annexed.

Stations.

The several stations are in reasonably good repair, with these exceptions: at No. 3, a new floor would seem necessary in the apparatus room, together with minor repairs to gutters, sky-lights, etc. At No. 1 Truck Station, the front doors must be enlarged to admit of use of the "three horse hitch." Additional windows on the apparatus floor are necessary for light and ventilation, and the removal of the unsightly storage sheds to the rear is urgently recommended. The condition of No. 2 Station is such as to require special examination to decide as to what is best to be done. (See recommendations.)

The new double station at the Highlands was occupied in July by Truck 2 and Chemical B, both pieces being operated by the same company, which will furnish both ladder and chemical service to the south side of the city.

Hydrants.

The recommendations for additional hydrants of 1891 are herewith renewed:

Shaw, between Lander and Winthrop streets.

Clyde and Walnut streets.

Walnut, between Edinboro and Lowell streets.

Washington, between Perkins and Prospect streets.

Watertown and Bridge streets.

Highland and Valentine streets.

Watertown and West streets.

Hillside ave., between Chestnut and Mt. Vernon streets.

Watertown, between Adams and Nevada streets.

Centre street, opposite national bank.

Washington and Eddy streets.

Church, between Centre and Eldridge streets.

Eddy, between Washington and Watertown streets.

Centre, between Ward street and Clinton place.

Margin and Chestnut streets.

Centre and Rice streets.

Lexington and Orris streets.

Centre, between Pelham and Beacon streets.

Auburn street and Woodland avenue.

Centre and Cypress streets.

Auburn, between Melrose and Woodbine streets.

Willow and Lyman streets.

Maple street and Berkeley place.

Elliot between Oak and Chestnut streets.

Hillside avenue and Alpine street.

Prospect, between Washington and Temple streets.

Trowbridge and Centre streets.

Beacon and Sumner streets.

Additional hydrants, and if necessary a larger main, should be provided for Crafts street in the Planing Mills and lumber district. Two hydrants widely separated, and the third so located as to prevent quick work, are entirely inadequate for the reasonable protection of these risks.

The completion of the "high service" has improved the situation on the high levels somewhat, but not to that

extent that will warrant the dispensing with any of our steam fire-engines. The additional pressure afforded through this system for effective fire streams is quickly reduced to the minimum when two or more hydrants are required.

Owing to the introduction of sewage in Wards 1, 2 and 7, a new experience has been opened up to both the Fire and Water Departments. Frequent, but unavoidable mishaps to water mains, necessitating the shutting off of large districts for repairs, clearly shows that until the completion of this important work, engines and long lines of hose must be the main dependence in such emergencies.

Recommendations.

I would recommend that immediate provision be made for the change of Headquarters from City Hall to No. 2 Station for the following reasons:

That the interests of the property owners require a prompt attendance of the chief officers of the department in case of fire which under the existing order cannot be given, immediate change should be made at the above station, to provide suitable office rooms and for the proper care of the Chief's team. More room is also a necessity for the proper re-arranging of the apparatus.

No more opportune time exists for these proposed changes than the present, and the need is urgent. Your attention is earnestly called to this matter.

Acknowledgements.

My acknowledgements are respectfully tendered the Mayor, Hon. Hermon E. Hibbard, and to Alderman Frederic M. Crehore, Chairman, Alderman Luke, and members of the Joint Standing Committee on Fire Department, for their earnest support, and courteous treatment of requirements of the service.

To the Assistant Chief, Walter B. Randlett, and the

employees, officers and members, my sincere thanks are expressed for the harmony and strict attention to duty, which has characterized their services; and to the Heads of Departments and their assistants for the courtesies of the year.

Appropriations and Expenditures.

Appropriation	\$40,612 00
Expenditures	41,472 00

Itemized as follows :

Salaries, permanent and call force	22,837 86
Fire alarm and telephone maintenance, including four signal stations and erecting same	1,610 08
Hay and grain	3,088 80
Coal and wood	1,053 71
Purchase and exchange horses	650 00
Extra horse hire (winter service, etc.,)	616 00
Shoeing	471 33
Repairs apparatus	494 74
Vacations and 4th of July	511 61
Medical attendance and medicine for horses	206 64
Incidentals	1,114 62

Ninety-five hundred dollars (\$9,500) of the above appropriation was specially ordered by the City Council for the purchase of new apparatus and equipments, including the maintenance of the same for the six months ending December 31, 1891, as follows :

One 3d size Babcock aerial truck.

One No. 4 Champion chemical engine.

Two pair horses, harnesses, etc.

Salaries, three permanent and ten call men.

The total expenditure from the above item amounting to \$8,816.61.

Electrical Department.

This department embraces the Fire and Police Telegraph, also all private lines used by the several city bureaus.

An aggregate of 175 miles of overhead wire requires the constant supervision of Assistant Chief Walter B. Randlett, and his assistant George G. Perkins. The duty is both arduous and exacting, but the exceptional service rendered upon all the lines is especially creditable to their faithfulness. I would recommend additional signal stations as follows :

Pearl street school building (private).

Waverley avenue and Durant street.

Centre and Ward streets.

Crystal street and Norwood avenue.

Lincoln and Bowdoin streets.

Hartford and Erie streets.

Lincoln street and Meredith avenue.

Elliot and Chestnut streets.

Central street and Woodland avenue.

River and Elm streets.

Highland and Chestnut streets.

Prince and Berkeley streets.

For details pertaining to this department together with the recommendations accompanying the same, you are respectfully referred to the report of the operator in charge, herewith annexed.

REPORT OF THE FIRE AND POLICE TELEGRAPH AND TELEPHONE DEPARTMENT.

FIRE ALARM HEADQUARTERS, }
NEWTON CENTRE, Dec. 31, 1891. }

Henry L. Bixby, Chief of Fire Department:

SIR:—I herewith submit a brief report upon the condition and working of the fire alarm for the year ending this date. The force of the department remains the same as last year, namely, one operator and one lineman.

There is at present under my charge the following apparatus, all of which is in good condition.

One four circuit repeater with suitable switches and galvanometers for testing, ninety signal stations, nine tower strikers, seventeen mechanical gongs, eight electric trips, twenty-five tap bells, fourteen relays, twenty-two protectors, three hundred cells gravity battery, one hundred cells open circuit battery, and one hundred and forty-five miles wire.

The system has worked very satisfactory during the year, fifty-four bell alarms having been sent in correctly, with one exception, and this was received on part of its circuit, so that all necessary apparatus was called. The cause of its failing to go through the repeater was grounded lines during storm. A large amount of work has been done on the lines in the way of repairs and extension. Box seven (7) loop has been extended to Jackson street, and thirty-two (32) to Lexington street. New drop loops have been run

to thirty-five stations, and all copper and wire connections soldered, the balance will be re-wired as soon as possible. Several switches have been placed at convenient points on No. 3 circuit, and by their use trouble can be located much more quickly. All long loops on other circuits will be supplied next year. The following is a summary of labor performed:

Boxes moved 6.

Wire taken down two miles.

New poles set 111.

Poles moved 25.

Poles taken down 25.

New iron wire strung No. 9, three and a half miles.

“ “ “ No. 10, four and a half miles.

“ “ “ No. 12, two and a half miles.

“ cov. iron wire strung No. 10, one mile.

“ copper wire strung No. 12, one half mile.

About 1,000 feet Clark covered No. 14.

All stations painted and varnished.

NEW INSTRUMENTS ADDED.

One fifteen inch gong.

One tap bell.

Four magnetors.

Four electric trips.

Three protectors.

One full set telephone instruments.

By order of City Council, four signal boxes were purchased, and three have been placed in circuit as follows:

341. Cherry and Derby streets.

321. River and Lexington streets.

721. Station and Jackson streets.

The fourth, 227, which is to be located corner of Otis and Murray streets, will be placed in circuit as soon as location of poles is settled.

Telephone Department.

The services in this department has been improved during the year by building a line from No. 3 to No. 1 Stations, and from No. 2 to No. 5, and cutting out Beacon, Walnut, and Washington streets, in order to make a belt-metallic circuit. This we find has reduced the induction somewhat, makes a clearer line so that the service is very much improved during the day, and some better nights. The line now makes a complete circuit of the city, taking in twelve instruments and twelve extension bells.

Police Signal.

The system cared for by this department consists of forty miles of wire, one hundred cells gravity battery, fifty cells open circuit, and twenty street stations connected at Headquarters with four relays, one four circuit register and time stamp, four call back instruments, one eight inch gong and indicator, one stable transmitter, one six inch gong, and one trip; also private telephone line eight miles wire with eight stations. A considerable amount of work has been done in this department other than the general care. The changes made at Headquarters and building stable required a complete re-wiring of the system. For the details of its working, I would respectfully refer to the City Marshal's report.

I would recommend the following changes :

That suitable protectors with fuses be placed at Police Central Office for the better protection of the instruments against high currents.

That fire alarm circuit No. 1 be rebuilt from railroad crossing on Centre to Clarke street, and changed from Clarke to Centre street through to Walnut.

That new poles be set on twenty-eight (28) and thirty-four (34) loops. I would call your attention to the necessity

of increasing the number of circuits from four to eight. This would require an entire change in the office instruments with the possible enlargement of the battery room. I would also suggest that a full set of instruments for electrical measurements be purchased for this office.

Respectfully submitted,

W. B. RANDLETT,

Operator in Charge.

REPORT OF DEPARTMENT VETERINARIAN.

Henry L. Bixby, Chief of Department:

SIR.—In making my annual report of the condition of the animals of the department, I have nothing of very special moment to report.

The general health throughout the year has been good and only one horse has been seriously sick, namely, one of the pair on Chemical B., that died from rupture of the stomach. The near horse on No. 3 Engine formerly on No. 1 Engine was taken lame in March, and after treatment for several weeks was put into service again and has done his work since without any return of the trouble and bids fair to last for years.

I would call your attention to the horses attached to No. 2 Truck, and would suggest that better service would be obtained from horses more adapted to the service, and those sound in wind and body. The near horse of the pair is a whistler, and but a short run or even a short sharp trot is necessary to pump him out, and then the balance of his work can be but poorly done. The off horse is not, in my opinion, adapted for the service being too much upon the giraffe order and also being easily and unreasonably excited at common objects. Neither of these horses are good feeders, and although I have endeavored to get them to eat more and better, my efforts have not been very successful; even the influence of the "Newmarket" powders was not sufficient.

I would in view of this statement of facts suggest to you and the Fire Department Committee whether it might not be for the interest of the department to exchange these horses.

I would also suggest that it has sometimes seemed to me that an extra horse in the department would in many respects be advisable. In cases of sickness, of accident, of lameness, there is of course a vacancy which must be filled and that at once too, as you very well know there is often trouble in getting a horse, and when got is oftentimes about as well fitted for the place as one of the regular horses would be for the track. An extra horse would be immediately available, would have been in service, would know what was expected from him, and could do it, and when not in service on the apparatus could be used by the Assistant Chief upon line work and thus relieving his horse from some of his duties.

If there was such a horse belonging to the department there are many times when one of the regular horses could be laid off for a few days when necessary, or in cases where not actually prevented from doing service he has been kept on, and thus better results would be obtained from the treatment. Such a horse would have to be a good one, but I do not think as a matter of finance the city would be the loser.

I have made the usual visits during the year, and in addition fifty-three extra visits, namely:

Corns	1
Galled shoulder	1
Shoeing	6
Shoe boil	1
Lameness	11
Colic	1
Indigestion or poor feeding	11
Broken knee	1

I desire to acknowledge the assistance and co-operation which I have received during the year from the various members of the department as well as from yourself and the Assistant Chief.

Yours respectfully,

MADISON BUNKER,

Department Veterinarian.

STATEMENT OF DETAILS OF FIRES AND ALARMS
FOR THE YEAR ENDING DECEMBER 31, 1891.

Jan. 4. Station 5. 8.30 P. M. Hamilton street. Two-story frame dwelling, 15x30, owned by W. B. Atherton, unoccupied. Loss \$150. Insured. Cause, incendiary.

Jan. 9. Station 13. 1 A. M. Lombard street. One-story frame, storage, 12x12, owned by E. S. Converse. Loss \$50. Cause, ignition from hot ashes.

Feb. 23. Station 24. 8.30 P. M. Watertown and Adams streets. Two-story frame tenement, 20x40, owned by John Barry, occupied by Chris. Bradley. Loss \$10. Cause, hot ashes in wooden box.

Feb. 28. Station 4. 3 A. M. Woodland avenue and Central street. Three-story frame dwelling, 40x60, owned and occupied by N. W. Farley. Loss \$260. Insured. Cause, hot ashes in wooden box.

March. 9. Special 22. 8.27 P. M. Brighton District, Boston. Samuel Hano Mfg. Co.

March 15. Station 14. 1.17 P. M. 140 Jewett street. Two-story frame dwelling, 40x40, owned by C. S. Dearborn. Loss \$10. Insured. Cause, defective gas jet.

March 16. Verbal. 3.20 P. M. Beacon and Hammond streets. Woodland.

March 17. Verbal. 4 P. M. Central street. Grass. Cause, locomotive sparks.

March 18. Telephone. 10.30 A. M. Boylston and Elliot streets. Grass. Cause, locomotive sparks.

March 18. Telephone. 5.13 P. M. Prince street. Geo. W. Howlett. Dwelling.

March 18. Station 334. 5.18 P. M. Prince street. Three-story frame dwelling, 40x50, owned by Geo. W. Howlett, unoccupied. Loss \$1,085. Insured. Cause, careless smoker.

March 24. Station 76. 6.54 P. M. 56 Crescent avenue. Three-story frame dwelling, 30x40, owned by D. F. Young, occupied by J. Edward Harlow. Loss \$157. Insured. Cause, ignition curtains from gas jet.

March 25. Station 61. 2.15 A. M. Chestnut and Summer streets. Two-story frame store and tenement, 18x36, owner Wm. Lowe, occupant Wm. Chambers. Loss \$142.50. Insured. Cause, explosion kerosene stove.

March 25. Station 541. 9.35 A. M. Washington and Beacon streets. One-story frame Hospital Morgue. No loss. Cause, ignition escaping gas.

March 26. Station 312. 5.14 A. M. Davis Court. Two-story frame dwelling, 15x28, owned by Mrs. Seth Davis, occupied by John Cavanagh. Loss \$208.75. Insured. Cause, sparks from open flue.

March 28. Station 641. 3.12 P. M. Lake avenue and Hyde street. Grass. Cause, locomotive sparks.

March 30. Station 47. 9.57 A. M. Woodland avenue and Washington street. Grass. Cause, set by children.

March 31. Verbal. 12 M. and 1.15 P. M. Clinton Place and Marshal street. Grass. Caused by children.

April 1. Station 81. 2.30 P. M. Ward and Sumner streets. Grass. Caused by sparks from bonfire.

April 2. Station 231. 8.35 P. M. 29 Norwood avenue. Two and a half story frame dwelling, 30x40, owned and occupied by Patrick Linnahan and Mrs. Cody. Loss \$426.50. Insured. Cause, careless smoker.

April 6. Station 231. 2.01 P. M. Washington Park. Grass. Cause, careless burning over of lawns.

April 9. Station 9. 1.25 P. M. Dedham and Brookline streets. Woodland. Cause, bonfire.

April 9. Station 53. 1.25 P. M. Pine Grove avenue. Woodland. Cause, locomotive sparks.

April 11. Station 712. 2.10 P. M. Morton street. Two and a half story frame dwelling, 30x40, owned and occupied by G. H. Morse. Loss \$222. Insured. Cause, ignition of woodwork from lamp.

April 11. Station 224 "P." 5.05 P. M. Chapel street. Nonantum Worsted Mills. Cause, a test alarm given by Mayor Hermon E. Hibbard. The entire department answers to this Station on First.

April 13. Station 62. 10.53 A. M. Walnut and Hyde streets. Bonfire. Cause of alarm, fire getting beyond control.

April 18. Telephone. 12.57 P. M. Prince and Sewall streets. Rubbish. Cause, set by children. No damage.

April 20. Station 91. 12.08 P. M. Station and Jackson streets. Woods. Cause, set by children. No loss.

April 24. Station 74. 2.02 P. M. Crystal street and Lake avenue. Brush fire. Cause, set by children. No loss.

April 29. Station 35. 10.30 A. M. Washington street and Simms Court. Two-story frame dwelling, 25x30,

owned and occupied by Chas. Simms. Loss \$195. Insured. Cause, sparks in wood box.

April 29. Station 71. 11.54 A. M. Cemetery avenue. Two-story frame dwelling, 15x30, owned and occupied by Daniel Coleman. No loss. Cause, chimney fire.

April 29. Station 4. 2.03 P. M. Staniford street. Two-story frame dwelling, 25x30, owned and occupied by Otto Sours and Mary Kelley. Loss \$123.25. Insured. Cause, sparks in wood box.

April 30. Station 46. Grove and Central streets. Three-story frame dwelling, 40x50, owned and occupied by E. F. Miller. Loss \$151.50. Insured. Cause, ignition of gas leak.

May 1. Verbal. 11.10 A. M. Tremont street and Waverley avenue. Rubbish on dump grounds.

May 4. Station 421. 3.20 P. M. Central street. Grass. Cause, locomotive sparks.

May 4. Station 47. 4 P. M. Woodland avenue. Woods. Cause, set by children.

May 4. Station 73. 5.17 P. M. Station and Beacon streets. Two-story frame stable, stores, etc. No loss. Cause, sparks from painter's lamp.

May 4. Telephone. 11.09 P. M. Wellesley Hills. Wood yard. Boston and Albany R. R. Call unnecessary.

May 8. Station 7. 11.24 A. M. Glen avenue. Two-story frame, shops, stable, and storage-shed, 30x100. Loss \$25. Insured. Cause, locomotive sparks.

May 9. Telephone. 2 P. M. Beacon street and Glen avenue. Grass. Cause, locomotive sparks. No loss.

May 10. Station 65. 3.12 P. M. Winchester street. Woods. Cause, set by children. No loss.

May 12. Station 53. 9.39 A. M. Pine Grove avenue. Woods. Cause, locomotive sparks. No loss.

May 13. Station 73. 2.52 P. M. Station and Beacon streets. Two-story frame stable, 24x28, occupied by James M. Woodbridge. Loss \$75. Insured. Cause, sparks from bonfire.

May 14. Station 34. 3 P. M. Waltham and Derby streets. Woods. Cause, careless smoker.

May 24. Station 73. 10.08 P. M. Station and Beacon streets. Three-story brick stores and tenements, owned by Daniel A. White. No damage. Cause, careless use matches.

May 26. Telephone. 9.13 A. M. Pine Grove avenue. Plank walk at Boston and Albany R. R. Station. Loss \$25. Cause, locomotive sparks.

May 30. Station 241. 9.36 P. M. West street. Two-story frame dwelling, 28x30, owned and occupied by Mrs. Wm. Fall. Cause, broken lamp.

June 14. Telephone. 4.45 P. M. Station 112. 4.46 P. M. Washington and Grassmere streets. Three-story frame dwelling, 30x40, owned and occupied by George H. Hastings. Loss \$85. Insured. Ignition window draperies from gas jet.

June 17. Station 16. 9.46 A. M. Oakland street. Lumber. Damage slight. Cause, children playing with matches.

June 22. Station 31. 12.15 P. M. 1235 Washington street. Two-story frame dwelling, 28x30, owned by Mrs. Seth Davis, occupied by Patrick McCarty. Loss \$20. Insured. Cause, children playing with matches.

June 22. Verbal. 2.32 P. M. Chestnut and Fuller streets. School of Children's Aid Society.

June 25. Station 17. 9.04 A. M. Gardner street. Two-story frame dwelling, 28x30, owned by Mrs. Mary Murray, occupied by Patrick Fay. Loss \$50. Cause, children playing with matches.

June 27. Station 52. 2.40 P. M. Chestnut and Fuller streets. Three-story frame Reformatory, 40x60, owned by Children's Aid Society. Loss \$2,714. Insured. Cause, defective chimney.

July 3. Special 2-2. 10.30 P. M. Brighton District, Boston. Lumber Docks. Granville Fuller and Sons.

July 4. Station 74. 12.57 A. M. Lake avenue. Two-story frame dwelling, 30x40, owned by D. S. Farnham, unoccupied. Loss \$2,000. Insured. Cause, incendiary.

July 19. Telephone. 7.35 P. M. Chestnut street, and Boston and Albany R. R. Bridge. Bonfire. Call unnecessary.

Station 52. 7.38 P. M. For above fire.

Aug. 3. Telephone. 9.30 A. M. Prince street. Three-story frame dwelling, 40x40. No loss. Cause, smoke from chimney.

Aug. 20. Station 52. 3.53 P. M. Beacon street and Boston and Albany R. R. Two-story frame stable, 28x30, one-story frame shed, 15x18, owned by E. L. Collins, occupied by Chas. Hale. Loss \$2,900. Insured. Cause, careless smoker.

Aug. 21. Telephone. 10.30 A. M. Ruins above fire.

Aug. 31. Verbal. 5 P. M. Beacon street and Lake avenue. Two and a half story frame dwelling, 30x50, owned and occupied by Andrew F. Leatherbee. Loss \$75.90. Insured. Cause, defective flue. Extinguished by Assistant Chief Randlett.

Sept. 4. Verbal. 10 A. M. Park and Vernon streets. Cause, broken gas main ignited.

Sept. 4. Special 2-2. 9.40 A. M. Watertown. Shade Roller Works.

Oct. 6. Telephone. 7.30 P. M. Somerville. Request for detail apparatus and men at fire at J. P. Squire & Sons. Details from Companies 1, 2, 4, 5, Trucks 1 and 2, in charge of Capt. Waterhouse with No. 2 Engine.

Oct. 11. Station 24. 1.40 P. M. 17 Chandler street. One-story frame storage shed, junk. Loss \$327. Insured. Cause, careless smoker.

Oct. 20. Station 24. 1.45 A. M. 16 Chandler street. One-story frame store, grocery, 20x25, owned and occupied by Chas. McGonigle. Loss \$175. Insured. Cause, incendiary.

Oct. 25. Telephone. 4.34 P. M. 391 Walnut street. Three-story frame dwelling, 40x40, owned and occupied by F. S. Rollins. No loss. Cause, defect in furnace.

Oct. 31. Station 23. 2.50 P. M. 876 Washington street. Two-story frame store and tenements, 30x50, owned and occupied by E. W. Hodgson. Loss \$60. Insured. Cause, locomotive sparks,

Oct. 31. Verbal. 5 P. M. Washington and Nonantum streets. One-story frame oil shed. Sewer Department. Cause, explosion of lamp.

Nov. 3. Station 8. 2.17 A. M. Brookline. Stable. Cause alarm, supposed to be in city.

Nov. 7. Telephone. 6.35 P. M. Cherry street. One-story frame shop, 12x18, owned by J. H. Nickerson, occupied by Winslow Fiske. Loss \$15. Cause, ignition curtain from gas jet.

Nov. 18. Station 35. 9.33 P. M. Prospect and Curve streets. Two-story frame dwelling, 20x30, owned by Napoleon J. Holmes, occupied by Jas. A. Wilson. Loss \$492.50. Insured. Cause, unknown, supposed incendiary.

Nov. 30. Telephone. 4.15 P. M. Central street. Two and a half story stone dwelling, 28x40, owned by Henry Mather, occupied by W. A. Lockett. No loss. Cause, hot ashes in wooden ash barrel.

Dec. 5. Station 73. 1.53 P. M. Station and Beacon streets. Two and a half story frame stores and tenements, owned by Horace Cozzens, occupant Mrs. Campbell. Loss \$50. Insured. Cause, children playing with matches.

Dec. 6. Telephone. 7.15 P. M. Beacon street and Agawan Road. Woodland. Cause unknown.

Dec. 11. Station 171. 6.09 P. M. Fayette street. One-story and half frame stable, 24x50, owned by Harriet Crocker, occupied by Horace G. Crocker and W. J. Woden. Loss \$966.75. Insured. Cause, incendiary.

Dec. 14. Telephone. 2.30 P. M. Charles street. Grass. No damage. Cause, set by children.

Dec. 14. Verbal. 2.50 P. M. Washington and Greenough streets. Woods. No loss. Cause, set by children.

Dec. 14. Station 13. 3.14 P. M. Sargent street and Park avenue. Grassland. No loss. Cause, bonfire getting beyond control.

Dec. 27. Station 23. 2.03 P. M. Highland avenue. Two and a half story frame dwelling, 30x60, owned by Peter Tancred. Loss \$75. Insured. Cause, children playing with matches.

APPENDIX.

SALARY LIST.

Officers.

Chief of Department, per year	\$1,700 00
Assistant Chief of department, per year	1,500 00

Employes.

Engineer of engines, per year	\$1,000 00
Drivers (2 horses), per year	800 00
Drivers (1 horse), per year	650 00
Relief Engineer, per year	900 00
Line and battery man, per year	800 00

Call Force.

Foreman of companies, per year	\$110 00
Assistant Foreman of companies, per year	105 00
Firemen, hose and truckmen, per year	100 00

ROSTER OF COMPANIES.

NO. 1 ENGINE.

STATION.—WASHINGTON OPP. NONANTUM STREET.

FIRST SIZE DOUBLE HUNNEMAN ENGINE, PLACED IN SERVICE OCTOBER 19, 1868: ONE HORSE REEL, CARRYING 750 FEET
 “WHITE ANCHOR” RUBBER HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
14	E. W. Lyons .	Foreman at call	Wash. & Centre Sts.	Plumber .	34
6	J. F. Horrigan, 2d	Assistant “	308 Washington St.	Carriagesmith	31
7	J. McCammon .	Hoseman “	83 Richardson St.	Merchant	38
11	W. Pingree .	Hoseman “	21 Avon St. . .	Carpenter	33
8	A. R. Carley .	Hoseman “	236 Washington St.	Painter .	26
4	W. A. Alfred .	Hoseman “	At Station . . .	Painter .	22
16	B. F. Tripp .	Fireman “	236 Washington St.	Carpenter	27
EMPLOYES.					
2	F. E. Judkins .	Engineer . . .	At Station . . .	Permanent	44
13	W. C. Mowry .	Driver . . .	At Station . . .	Permanent	33
15	P. C. Carroll .	Driver . . .	At Station . . .	Permanent	39

Promotions.

F. A. DEXTER, from Driver No. 1 Engine to Driver No. 2 Truck, . July 1, 1891.
 P. C. CARROLL, from Hoseman to Driver No. 1 Reel, . . . Nov. 8, 1890.
 W. C. MOWRY, from Driver No. 2 Hose to Driver No. 1 Engine, . July 1, 1891.

Appointments.

CHAS. O. HIGBEE, JR., Hoseman, Jan. 1, 1891.

ENGINE 2 AND CHEMICAL A.

STATION.—WASHINGTON STREET AND LINCOLN PARK.

SECOND SIZE AMOSKEAG ENGINE, No. 4 CHAMPION CHEMICAL ENGINE, ONE HORSE, ABBOT DOWNING HOSE REEL, 750 FEET HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
23	F. H. Humphrey	Foreman at call	18 Webster St. .	Merchant	45
24	H. W. Nicholl .	Assistant “	Waltham St. . .	Carpenter	46
26	Geo. F. Saunders	Hoseman “	Henshaw St. . .	Carpenter	24
20	E. P. Kebbe . .	Hoseman “	1411 Wash. St. .	Carpenter	27
28	J. P. Christie .	Hoseman “	Waltham St. . .	Carpenter	34
31	C. H. Morse . .	Hoseman “	At Station . . .	Tinsmith .	23
30	J. A. King . . .	Hoseman “	1357 Wash. St. .	Carpenter	23
40	E. S. Haynes . .	Hoseman “	At Station . . .	Plumber ▶	25
EMPLOYEES.					
17	R. S. Cummings	Engineer . . .	At Station . . .	Permanent	41
21	J. S. Saunders .	Driver	At Station . . .	Permanent	24
25	J. F. Calden . .	Driver	At Station . . .	Permanent	
19	G. K. Stacy . .	Relief Engineer	At Station . . .	Permanent	30

Promotions.

J. F. SAUNDERS, from Reel Driver to Driver Engine, . . . Jan. 3, 1891.
W. C. MOWRY, from Reel Driver to Driver No. 1 Engine, . . . July 1, 1891.

Honorable Discharge.

C. L. BERRY, Driver Engine, Jan. 3, 1891.
W. H. FISKE, Hoseman, April 1, 1891.

Appointments.

W. H. FISKE, Hoseman, Jan. 1, 1891.
J. A. KING, Hoseman, May 15, 1891.
J. F. CALDEN, Driver Reel, June 1, 1891.
E. S. HAYNES, Hoseman, Aug. 15, 1891.

NO. 3 ENGINE.

STATION.—WILLOW STREET.

SECOND SIZE AMOSKEAG, ONE HORSE REEL, 750 FEET OF HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
34	A. I. English . .	Foreman at call	Centre St. . . .	Builder .	43
41	S. F. Chadbourne	Assistant “	Willow St. . . .	Carpenter	41
42	C. B. Geary . .	Hoseman “	Lyman St. . . .	Builder .	43
38	D. McDonald . .	Hoseman “	Station St. . . .	Carpenter	41
44	C. J. Polly . . .	Hoseman “	Lyman St. . . .	W. Wright	33
37	W. B. Polly . .	Hoseman “	Pelham St. . . .	Clerk . .	30
73	J. McMahon . .	Hoseman “	Willow St. . . .	Blacksmith	32
36	C. E. Thompson .	Fireman “	At Station . . .	Carpenter	32
EMPLOYES.					
32	A. D. Colby . .	Engineer . . .	At Station . . .	Permanent	58
43	P. E. Ellis . . .	Driver . . .	At Station . . .	Permanent	32
46	E. G. Hennrikus	Driver . . .	At Station . . .	Permanent	31

Appointment.

E. G. HENNRİKUS, Driver Reel, July 1, 1891.

HOSE 4.

STATION.—WASHINGTON OPP. WALKER STREET.

ONE HORSE REEL, 700 FEET OF HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
52	E. C. Waterhouse	Foreman at call	Washington St. .	Carpenter	38
47	A. J. Wandlass .	Assistant “	Allston St. . . .	Carpenter	46
50	D. Archibald . .	Hoseman “	At Station . . .	Merchant	38
48	N. P. Snell . . .	Hoseman “	At Station . . .	Painter .	27
49	Edward Joyal . .	Hoseman “	Eddy Place . . .	Carpenter	28
EMPLOYEE.					
51	E. A. Jones . .	Driver . . .	At Station . . .	Permanent	32

Appointment.

E. A. JONES, Driver Reel, January 15, 1891.

Promotion.

J. S. WILLIAMS, Hoseman to Driver No. 5 Reel, January 1, 1891.

HOSE 5.

STATION.—AUBURN, BETWEEN MELROSE AND WOODBINE STS.

ONE HORSE REEL, 700 FEET HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
55	J. F. Washburn .	Foreman at call	At Station . . .	Painter .	33
58	J. U. Kimball . .	Assistant “	At Station . . .	Carpenter	44
57	J. Frost	Hoseman “	Auburn St. . . .	Shoemaker	57
53	C. H. Hall . . .	Hoseman “	Auburn St. . . .	Painter .	42
EMPLOYEE.					
56	G. M. Curtis . .	Driver . . .	At Station . . .	Permanent	37

Appointment.

G. M CURTIS, Reel Driver, July 1, 1891.

HOSE 6.

STATION.—WASHINGTON AND HAMILTON STREETS.

ONE HORSE REEL, 700 FEET OF HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
75	Bernard Early .	Foreman at call	Wash. & Wales S'ts.	Papermaker	34
76	D. J. Corcoran .	Assistant “	Hamilton St. . .	Carder .	29
79	P. E. O'Neil . .	Hoseman “	Grove St. . . .	Fireman .	34
74	T. E. Healy . . .	Hoseman “	Wales St. . . .	Painter .	31
77	A. B. Hayden . .	Hoseman “	At Station . . .	Machinist	24
EMPLOYEE.					
59	O. A. Colby . . .	Driver . . .	At Station . . .	Permanent	22

Resigned.

D. J. COONEY, Driver, April 4, 1891.

Appointment.

O. A. COLBY, Driver, April 4, 1891.

HOSE 7.

STATION.—PETTEE STREET.

ONE HORSE REEL, 650 FEET OF HOSE.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
82	W. S. Cargill . .	Foreman at call	High St. . . .	W'd-worker	45
84	H. A. Smith . .	Assistant "	Rockland Place .	W'd-worker	37
81	J. E. Trowbridge .	Hoseman "	High St. . . .	Merchant .	55
80	J. T. Thomason .	Hoseman "	Chestnut St. . .	Merchant .	44
83	G. H. Osborn . .	Hoseman "	High St. . . .	Moulder .	43
EMPLOYEE.					
86	E. L. Richards .	Driver . . .	At Station . . .	Permanent	32

Honorable Discharge.

J. L. RANDALL, February 15, 1891.

Appointment.

E. L. RICHARDS, Driver, February 1, 1891.

NO. 1 TRUCK.

STATION,—WASHINGTON OPP. WALKER STREET.

THIRD SIZE BABCOCK AERIAL TRUCK.

Badge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
62	W. S. Higgins . .	Foreman at call	Brooks Ave. . .	Builder .	44
60	F. B. Sisson " . .	Assistant "	Washington St. .	Carpenter	53
87	O. Dow	Truckman "	Murray St. . . .	Plumber .	48
68	T. C. Nickerson .	Truckman "	Lowell St. . . .	Builder .	46
65	U. H. Dyer . . .	Truckman "	Spruce St. . . .	Merchant	39
64	J. Beals	Truckman "	Washington St. .	Merchant	42
69	J. Watts	Truckman "	Washington St. .	Carpenter	35
70	J. F. Horrigan .	Truckman "	Washington St. .	Painter .	48
61	C. Coleman . . .	Truckman "	Allston St. . . .	Carpenter	45
71	M. McLeod . . .	Truckman "	Edinboro St. . .	Carpenter	36
63	A. A. Savage . .	Truckman "	Brooks Ave. . . .	Merchant	45
EMPLOYEE.					
59	J. E. Watson . .	Driver . . .	At Station . . .	Permanent	36

Honorable Discharge.

J. H. WILLIAMS, March 1, 1891.

NO. 2 TRUCK AND CHEMICAL B.

STATION.—BOYLSTON AND COOK STREETS.

SECOND SIZE H. AND L. TRUCK, 273 FEET OF LADDERS, No. 4 CHAMPION CHEMICAL ENGINE.

Budge.	NAME.	RANK.	RESIDENCE.	OCCUPATION.	Age.
93	S. W. Corbett . .	Foreman at call	Walnut St. . .	Carpenter	32
94	Chas. Masters . .	Assistant “	Lincoln St. . .	Painter .	29
95	W. F. Heal . . .	Truckman “	Floral Ave. . .	Carpenter	37
97	C. E. Nash . . .	Truckman “	At Station . .	Machinist	29
96	B. G. Stronach . .	Truckman “	At Station . .	Carpenter	21
99	F. N. Masters . .	Truckman “	Lincoln St. . .	Painter .	23
98	W. B. McMullen . .	Truckman “	Lincoln St. . .	Carpenter	23
100	J. L. Randall . .	Truckman “	Elliot St. . . .	Janitor .	54
101	J. W. C. Easterbrook	Pipeman “	At Station . . .	Tinsmith .	24
102	J. L. Richardson .	Pipeman “	At Station . . .	Machinist	25
EMPLOYEES.					
90	J. S. Williams . .	Lieut.	At Station . . .	Permanent	30
91	F. A. Dexter . . .	Driver	At Station . . .	Permanent	34
92	W. H. Ayles, Jr. .	Driver	At Station . . .	Permanent	26

Statement of Duty Performed by Each Company.

APPARATUS.	MILES.	HOSE.	LADDERS.	Gallons Used, Chemicals.	DURATION OF SERVICE.
Engine One . . .	49	5,750 ft.	..	..	33 hours.
Engine Two . . .	70	3,300 “	..	..	27 hours.
Engine Three . .	58	5,750 “	..	..	23 hours, 15 min.
Hose Four . . .	123	3,550 “	..	..	37 hours, 10 min.
Hose Five . . .	33	2,400 “	..	..	8 hours, 55 min.
Hose Six	47	2,950 “	..	..	24 hours, 10 min.
Hose Seven . . .	91	1,250 “	..	..	23 hours.
Truck One . . .	148	..	844 ft.	..	35 hours, 45 min.
Truck Two* . . .	10	..	30 “	..	9 hours.
Chemical A . . .	168	2,750 “	144 “	975	37 hours, 45 min.
Chemical B . . .	16	700 “	14 “	300	7 hours.
Total	813	28,350 ft.	1,032 ft.	1,275	266 hours.

* Went into service July 1, 1891.

FIRE ALARM DEPARTMENT.

CITY BUILDING, WILLOW STREET.

WALTER B. RANDLETT, *Asst. Chief in Charge.*

GEO. G. PERKINS, *Lineman.*

Instruments in Circuit at Fire Alarm Headquarters.

Four circuit repeater, 1873	.	.	.	.	.	1
Galvanometers	.	.	.	.	.	6
Twelve point switch boards	.	.	.	.	.	2
Morse keys	.	.	.	.	.	2
Electric automatic test clock	.	.	.	.	.	1
Electric stop clock	.	.	.	.	.	1
Electric register and time stamp	.	.	.	.	.	2
Time gong (8 inch.)	.	.	.	.	.	1
Four drop annunciator	.	.	.	.	.	1
Relays	.	.	.	.	.	6
Tap bells	.	.	.	.	.	4
Extension and call bells	.	.	.	.	.	2
Electric protectors (Rogers patent)	.	.	.	.	.	4

Location and Size of Tower Bells.

BUILDING.	STREET.	WEIGHT.
Armory	Washington, opp. Channing St.	2,240 lbs.
Methodist Church . .	Walnut and Bowers Sts.	1,200 "
City Hall	Washington and Cherry Sts. . . .	2,650 "
Congregational Church .	Hancock St. and Woodland Ave.	3,250 "
No. 6 Station	Washington and Hamilton Sts.	727 "
Methodist Church . .	Summer St.	1,500 "
Congregational Church .	Hartford and Lincoln Sts. . . .	1,500 "
Mason School	Station and Beacon Sts.	2,000 "
North Church	Chapel St.	900 "

Location, Circuit, and Size of Gongs and Tap Bells.

LOCATION.	CIRCUIT.	SIZE.
No. 1 Station	No. Four . .	15 inch.
No. 1 Station	Special (Boston)	8 "
No. 2 Station	No. Three . .	15 "
No. 2 Station	Special (Boston)	3 "
No. 3 Station	No. Four . .	15 "
No. 3 Station	Special (Boston)	3 "
No. 1 Truck Station	No. Three . .	16 "
No. 2 Truck Station	No. One . . .	15 "
No. 5 Station	No. Two . . .	16 "
No. 6 Station	No. Two . . .	15 "
No. 7 Station	No. One . . .	16 "
Pumping Station	No. One . . .	8 "
Residence Otis Pettee, Secretary G. F. A. Co. .	No. One . . .	8 "
Gamewell Fire Alarm Works	No. One . . .	16 "
Residence of Chief of Department	No. Three . .	8 "
Residence Assistant Chief	No. Two . . .	8 "
Fire Alarm Headquarters	Special (Boston)	8 "

Location of Signal Stations.

12. Park and Church streets, Newton.
13. Sargent and Centre streets, Newton.
14. Washington and Jewett streets, Newton.
15. No. 1 Engine Station, Newton.
16. Church and Centre streets, Newton.

17. Pearl and Thornton streets, Newton.
18. Newtonville avenue and Howard street, Newton.
112. Washington street and Waverly avenue, Newton.
113. Waverly avenue and Vernon street, Newton.
114. Eldredge and Vernon Streets, Newton.
115. Centre and Elmwood streets, Newton.
116. Centre and Bennington streets, Newton.
117. Washington and Channing Streets, Newton.
171. Boyd and Jewett streets, Newton.
21. No. 1 Truck Station, Newtonville.
23. Washington and Walnut streets, Newtonville.
24. Chapel and Watertown streets, Nonantum.
25. Lowell and Watertown streets, Newtonville.
26. Walnut street, opposite High School, Newtonville.
27. Forest and Alpine streets, Newtonville.
28. Crafts and California streets, Newtonville.
212. Watertown and Parsons streets, Newtonville.
224. Nonantum Worsted Mills (P), Nonantum.
225. Silver Lake Co. (P), Newtonville.
226. High School, Walnut street (P), Newtonville.
227. Otis and Murray streets, Newtonville.
231. Washington Park, Newtonville.
241. Adams and Middle streets, Nonantum.
242. Crafts street, opposite Planing Mills, Mewtonville.
245. California and Paxon streets, Nonantum.
31. Waltham and Washington streets, West Newton.
32. River and Pine streets, West Newton.
34. Waltham and Derby streets, West Newton.
35. Chemical A Station, West Newton.
36. Fuller and Washington street, West Newton
37. Hillside avenue and Otis streets, West Newton.
311. Newton and Waltham electric car station, West Newton.
312. Police Headquarters, Cith Hall, West Newton.
313. Webster street and Webster place, West Newton.
321. River and Lexington streets, West Newton.
331. Margin street and Boston & Albany R. R. station, West Newton.
334. Shaw and Winthrop streets, West Newton.
336. Woodland Park Hotel (P), Auburndale.
341. Cherry aud Derby streets, West Newton.
4. No. 5 Hose Station, Auburndale.
41. Auburn and Charles streets, Riverside.
42. Woodland avenue and Grove streets, Auburndale.
43. Ash and Islington streets, Auburudale.
44. Lexington and Freeman streets, Auburndale.
45. Auburn and Greenough streets, Auburndale.

- 46. Maple and Central streets, Auburndale.
- 47. Woodland and Vista avenues, Avburndale.
- 421. Hancock and Fern streets, Auburndale.
- 442. Lassell Seminary (P), Auburndale.
- 5. No. 6 Hose Station, Lower Falls.
- 51. Washington and Concord streets, Lower Falls.
- 52. City Farm, Waban.
- 53. Grove street and Pine Grove avenue, Lower Falls.
- 54. Washington and Beacon streets, Woodland.
- 512. Paper Mills of C. F. Crehore & Sons (P), Lower Falls.
- 541. Cottage Hospital, (P) Woodland.
- 6. No. 7 Hose Station, Upper Falls.
- 61. Chestnut and Winter streets, Upper Falls.
- 62. Walnut and Dunclee streets, Highlands.
- 63. Mechanic and Elliot streets, Upper Falls.
- 64. Walnut and Lincoln streets, Highlands.
- 65. Cook and Boylston streets, Highlands.
- 612. Office Pettie Machine Works (P), Upper Falls.
- 613. Newton Mills (P), Upper Falls.
- 614. Gamewell Fire Alarm Works (P), Upper Falls.
- 617. Boylston and Chestnut streets, Upper Falls.
- 621. Chestnut and Oak streets, Upper Falls.
- 641. M. G. Crane's building, Rogers street, (P), Highlands.
- 7. Station street and Glen avenue, Newton Centre.
- 71. Walnut street and Cemetery Gate.
- 72. Centre and Pelham streets, Newton Centre.
- 73. No. 3 Engine Station, Newton Centre.
- 74. Beacon street and Laurel avenue, Newton Centre.
- 75. Cypress and Paul streets, Newton Centre.
- 76. Centre street and Norwood avenue, Newton Centre.
- 712. Homer and Cedar streets, Newton Centre.
- 721. Station and Jackson streets, Thompsonville.
- 8. Beacon and Hammond streets, Chestnut Hill.
- 81. Ward street and Waverly avenue, Newton Centre.
- 82. Kenrick street and Waverly avenue, Newton Centre.
- 83. Waverly avenue and Kenilworth street, Newton.
- 9. Brookline and Dedham streets, Oak Hill.
- 91. Clark and Parker streets, Oak Hill.

Department Signals.

Repetition of First,	.	.	.	.	.	.	.	.	.	Second Alarm.
3 blows,	.	.	.	.	.	.	.	.	.	General Alarm.
10 blows, followed by Station number,	.	.	.	.	.	.	.	.	.	Second and General combined.
2-2	.	.	.	.	.	.	.	.	.	No. 1 Engine out of city.
3	.	.	.	.	.	.	.	.	.	No. 2 Engine out of city.
3-3	.	.	.	.	.	.	.	.	.	No. 3 Engine out of city.

Special Calls.

1-2-1 followed by Station number,	No. 1 Engine.
1-2-2 followed by Station number,	No. 2 Engine.
1-2-3 followed by Station number,	No. 3 Engine.
1-3-3 followed by Station number,	Chemical A.
1-2 followed by Station number,	Truck One.
4 followed by Station number,	Hose Four.
5 followed by Station number,	Hose Five.
6 followed by Station number,	Hose Six.
7 followed by Station number,	Hose Seven.

Companies answering "Special Calls" will wait 30 seconds before leaving quarters, to prevent mistakes.

Every member of the department must thoroughly understand these signals.

Signals.

1 blow for test at 11.45 A. M. and 5.45 P. M.; Sundays, 12.15 P. M.

1-1 two blows will be given when the companies in service at fires have made up.

Should an alarm occur from another station before this signal is struck, companies answering Second will immediately answer on First; companies answering Third will answer second.

14 blows, followed by the station number, will assemble the police in case of emergency.

School Signals.

3-3-3 once. Morning sessions 7.15 or 8.15. Afternoon session at 142.5.

STATISTICS.

From January 1, 1891, to December 31, 1891.

Total alarms, (Bell)	54
Total alarms, (Telephone)	13
Total alarms, (Verbal)	9
Total alarms, (Out of City)	5
Grand total, (All alarms)	81
Loss on buildings	\$10,589 65
Insurance paid on same	10,186 65
Loss on contents	7,945 50
Insurance paid on same	7,495 50
Total insurance at risk on above	117,000 00
Assessed value of Real Estate on above	203,000 00
Total street Signal Stations	88
Total Fire stations	8
Total Fire Hydrants	675
Reservoir capacity, high service, (gals.)	2,500,000
Reservoir capacity, low service, (galls.)	14,500,000
Pumping engines capacity, 2, (galls. daily)	5,000,000
Total miles street mains	102
Area of fire limits, (square miles)	20

CITY OF NEWTON.

ANNUAL REPORT

OF THE

CITY ENGINEER,

FOR THE YEAR 1891.



NEWTON UPPER FALLS:
FANNING PRINTING CO.
1892,

OFFICERS OF CONTROLLING BOARDS AND COMMITTEES.

Chief Executive Officer (ex officio).

HIS HONOR THE MAYOR, HERMON E. HIBBARD.

Joint Standing Committee on Highways.

ALDERMAN JOHN A. FENNO, *Chairman*.

Water Board.

HON. WILLIAM P. ELLISON, *President*.

Joint Standing Committee on Sewerage.

ALDERMAN WILLIAM F. HARBACH, *Chairman*.

Joint Standing Committee on Assessors' Department.

ALDERMAN WILLIAM F. HARBACH, *Chairman*.

Joint Standing Committee on Public Property.

ALDERMAN ELLIOT J. HYDE, *Chairman*.

Board of Health.

HIS HONOR THE MAYOR, HERMON E. HIBBARD, *President (ex-officio)*.

Joint Standing Committee on Public Parks, Squares and Burial Grounds.

ALDERMAN WILLIAM F. HARBACH, *Chairman*.

CITY ENGINEER'S DEPARTMENT.

City Engineer.

ALBERT F. NOYES.

Principal Assistant Engineer.

HENRY D. WOODS.

In charge of office, and Highway construction.

Assistant Engineer.

I. W. HASTINGS.

Street Surveys and Assessors Block System of Plans.

WILLIAM P. MORSE.

Water Works Extension and Surface Drainage.

Transitmen and Levellers.

FRANK W. UPHAM.

HENRY E. D. JEFFERSON.

Rodmen.

CHARLES TEMPERLEY.

ARTHUR E. HORTON.

HARRY L. KIMBALL.

C. H. HOLLINGSWORTH.

Draughtsmen.

HERBERT F. PIERCE.

G. M. WARREN.

FRANKLIN BRETT.

Bookkeepers and Stenographers.

J. A. POND.

E. F. McCARTY.

REPORT.

CITY ENGINEER'S OFFICE, CITY HALL, }
WEST NEWTON, MASS., DEC. 31st, 1891. }

To the Honorable City Council:—

GENTLEMEN:—In compliance with Section 5 of Ordinance No. 9, I herewith respectfully submit the annual report of the City Engineer's Department for the year 1891.

Amount appropriation for the year, . . .	\$8,635 00
Amount of additional appropriation, . . .	1,000 00
	<hr/>
Total appropriation,	\$9,635 00
Amount expended,	9,629 67
	<hr/>
Balance unexpended,	\$5 33

Classification of Expenditures.

For salaries of City Engineer, assistants, draughtsmen, rodmen, and stenographer,	\$6,943 76
For car fares and other incidental office ex- penses,	236 84
For new wagon and sleigh,	177 00
For care and keeping of horses, wagons, etc., .	678 74
For instruments and repairs,	1,109 60
For drawing paper and other supplies, . . .	483 73
	<hr/>
Total amount,	\$9,629 67

The item of salaries of City Engineer and assistants may be divided as follows:—

For defining street lines; making surveys and maps; the examination of titles and draughting of reports, orders and releases for street widening, acceptance and extensions; office records; defining and establishing proposed grades of streets; preparing specifications for the construction of new streets; surveys, plans, profiles and estimates for proposed work on highways, and for all work relating to highways,	\$1,910 94
For clerical work in keeping highway accounts,	846 55
For making surveys, maps, profiles, estimates, designs, calculations and reports, superintending the construction, and for all work relating to the designing of a system of sewers,	1,689 29
For establishing lines and grades for extension of water pipe, locating and measuring service pipes, and for all work relating to water works,	996 44
For copying all Newton plans at the registry of deeds, and indexing the same; and for all indexing of other plans, deeds, field work, etc.,	512 39
For defining the lines, surveys and plans of city property, and for all work under the direction of the Joint Standing Committee on Public Property,	327 58
For defining the lines, grading, making surveys and plans of the various parks and proposed parks; and for all work under the direction of the Joint Standing Committee	

on Public Parks, Squares and Burial Grounds,	215 45
For defining the lines and grades for the con- struction of drains and culverts, making preliminary surveys, plans, profiles, dia- grams, estimates, calculations, and all work relating to drains,	197 32
For measuring up and calculating the frontage for Street Watering assessment, and for all work relating to the same,	181 48
For making surveys and levels for plans, pro- files and estimates for the use of the City Solicitor in suits for or against the city; for attending court, and for all work re- lating to said suits,	41 67
For surveys and plans for numbering houses on the various streets of the city, and for all work relating to the same,	24 65
Total amount	<hr/> \$6,943 76

Surveys have been made of the whole or part of sixty-eight streets, covering a length of seventeen and six hundredths (17.06) miles. Surveys have been made of one and five tenths (1.5) miles of brook; sixty-four hundredths (.64) miles of the Charles River; sixty-eight hundredths (.68) miles of Silver Lake, and three and thirty-nine hundredths (3.39) miles of division lines; making a total of twenty-three and twenty-six hundredths (23.26) miles of survey lines. Six hundred and fifteen (615) plans, profiles and tracings have been made. Levels have been taken over the whole or part of fifty-seven (57) streets or brooks, a total of eighteen (18) miles. Lines have been established on sixty-one streets, and grades on ninety-five streets. The total length of grades given was ten and eight hundredths

(10.08) miles. The total number of plans, profiles, tracings etc., now in the office, is 4,236.

The minimum number of assistants employed during the past year is twelve, the maximum number at any time in the office sixteen. The minimum number of assistants employed on the sewers was twelve, and the maximum number at any one time was thirty-six.

Upon the following named streets, plans and profiles have been made; lines and grades defined; titles and boundaries of the abutting estates examined; reports, orders and releases drawn; and said streets have been laid out and accepted by the City Council.

Streets Accepted in 1891.

STREET.	From	To	Width in Feet.	Length in Feet.
Fairview, . . .	Hunnewell Ave.,	End, . . .	40	376 64
Highland, . . .	Lenox St., . .	Forest Ave., .	40	777 93
Linder Ter., . .	Hunnewell Ave.,	End, . . .	40	214 52
Temple, . . .	Prospect St., .	Fuller St., .	40	2,061 40
Total,	0, 65 Miles			or 3,480 49

The routine work of the office, the system of accounts, the copying and indexing of all Newton plans of the registry of deeds, county commissioners' and clerk of courts' offices, also all private land plans attainable has been continued as outlined in previous reports.

Plans were prepared for the drainage of a portion of the Newton Centre playground lying north of Hammond's Brook. Tile drains were laid as deep below the surface as conditions would warrant, making an average depth of 3 feet 9 inches, and about 24 feet apart, discharging through a main or collecting pipe into the brook.

The committee after receiving bids awarded the contract

for laying the tile (tile furnished by the city) to John Joyce, at the following prices :—

8 inch pipe —	18 cents.	6 inch pipe —	15 cents.
4 " "	12 "	3 " "	11 "
2 " "	10 "		

After completion of the contract, the section drained was graded and seeded down. It will be advisable to treat another section lying west of the one completed in a similar manner.

The work upon the block system of plans for the assessors was carried on as described in the report of last year. The sheets were completed for wards 3 and 4, and the surveys were made, and plans and sheets for ward 2 were nearly completed. The amount expended was \$3,355.56.

The work done on the Highways, Water Works, Sewers, Board of Health and Public Property will appear more fully under their respective heads.

HIGHWAY DEPARTMENT.

Highway Surveyors and Joint Standing Committee on Highways.

ALDERMAN JOHN A. FENNO, *Chairman.*

ALDERMAN FREDERIC M. CREHORE.

ALDERMAN ARTHUR F. LUKE.

COUNCILMAN EDWARD L. COLLINS.

COUNCILMAN GEORGE F. RICHARDSON.

COUNCILMAN HENRY E. BOTHFELD.

COUNCILMAN WILLIAM F. GRACE

EXECUTIVE OFFICERS.

Superintendent of Streets.

CHARLES W. ROSS.

Assistant Superintendents of Streets.

GEORGE E. STUART, WARDS 1, 2 and 7.

CHARLES L. BERRY, WARDS 3 and 4.

CHARLES A. PECK, WARDS 5 and 6.

City Engineer.

ALBERT F. NOYES.

HIGHWAYS.

During the year the Joint Standing Committee on Highways has had under its management the repairs, building and rebuilding of streets, drains, culverts, bridges, sidewalks, etc., the gravel lands and the watering of the streets.

An almost complete change was made in the membership of the Highway Surveyors and the Joint Standing Committee on Highways, Alderman Luke being the only member of last year's committee that remained.

Several drains were laid to relieve long portions of flat streets upon which the water stood after storms. The principal drains of this class were laid in Berkeley Place, Maple street and Woodland Avenue by the Seminary grounds, River street west of Pine street, Chestnut and Oak streets by the Gamewell factory, Central avenue and Washington streets to relieve Newtonville Square, and Otis street east of Murray street.

At one of the earliest meetings of the Highway Committee, His Honor the Mayor called attention to the reputed good condition of the roads in Europe, and methods there employed in maintaining and repairing the same, and advised the adoption of a similar method in Newton, which he thought would reduce the cost of maintaining the streets and give better results.

By direction of the committee a report upon the method of maintaining the roads in France was prepared and made. (See appendix A for report.) Plans of the city were prepared. The streets were classified as principal and secondary streets, and country roads, and shown on the plan in a color for each class.

Twenty-two and four tenths (22.4) miles of the principal streets were selected upon which to make a trial of the method proposed, and were divided into ten sections, as follows:—

Sec.	Street.	Location.	Length	Width.	Width, road ft. & in.	Area of St.
1.	{ Washington	Craft to Boston . . .	3,250	55	2,35	22,917 sq. yds.
	{ Centre . . .	Washington to Chapel . .	1,000	60	4,30	6,750 "
2.	{ Waverly Ave.	Washington to Ward . .	2,230	50	2,50	21,165 "
	{ Sargent . . .	Concord to Waverly . .	2,494	40	5	7,502 "
3.	{ Washington	Craft to Cross . . .	3,800	55	2,35	20,716 "
	{ Walnut . . .	Washington to Mill . .	1,200	50	2,50	16,800 "
4.	{ Waltham . .	Washington to Craft . .	1,500	50	2,50	15,400 "
	{ Watertown . .	Washington to Boylston . .	2,100	60	4,30	17,800 "
5.	{ Washington	Cross to Auburn . . .	2,200	60	5,0	17,335 "
	{ Auburn . . .	Washington to Woodland . .	1,200	50	2,50	18,140 "
	{ Woodland . .	Auburn to Concord . .	1,000	50	2,50	12,000 "
6.	{ Washington	Auburn to Concord . .	1,000	50	2,50	26,460 "
	{ Grove . . .	Washington to Concord . .	1,000	40	5	6,450 "
	{ Concord . . .	Auburn to Concord . .	1,000	50	2,50	11,900 "
7.	{ Center . . .	Concord to Walnut . .	1,000	60	4,50	28,350 "
	{ Franklin . . .	Concord to Walnut . .	1,000	40	5	5,400 "
	{ Ward . . .	Concord to Walnut . .	1,000	40	5	17,000 "
8.	{ Center . . .	Ward to Franklin . . .	1,000	60	4,50	13,950 "
	{ Beacon . . .	Center to Franklin . . .	2,000	70	5	40,000 "
	{ Beacon . . .	Center to Franklin . . .	2,000	50	2,50	11,75 "
	{ Walnut . . .	Center to Franklin . . .	2,000	50	2,50	14,710 "
9.	{ Center . . .	Center to Franklin . . .	2,000	50	2,50	17,500 "
	{ Walnut . . .	Center to Franklin . . .	2,000	50	2,50	8,750 "
	{ Lincoln . . .	Center to Franklin . . .	2,000	70	5	7,500 "
	{ Hartford . . .	Center to Franklin . . .	2,000	60	4,50	2,000 "
10.	{ Eliot . . .	Center to Franklin . . .	2,000	50	2,50	16,500 "
	{ High . . .	Center to Franklin . . .	2,000	50	2,50	7,500 "
	{ Chestnut . . .	Boylston to Oak . . .	1,000	50	2,50	10,500 "
			101,205			442,652 sq. yds.

They were selected in such a way that the work on each would be as equally divided as possible: that is, sections having the most traffic and wear, and those in the least perfect condition were selected with less superficial area to be cared for than those sections recently put in condition and receiving less traffic. The men assigned to each section were selected from the most reliable and efficient men on the force, and were called

section men, and remained under the charge of the district foremen. Their duty was to keep their section in proper condition; that is, to keep the gutter clean of weeds, trim the grass, patch all gulleys and ruts in the road-bed, look after the sidewalks, etc., in fact do all the small repairs necessary as soon as needed, the regular street force being called upon only for large repairs and renewals of the road-beds, etc.

They were not to be called off from their regular work except in emergencies, such as snow storms etc., when the entire force is needed clearing the roads. Each man was supplied with a wheel-barrow, a pick, a shovel and a wooden rake, hoe, lantern, sickle, edging knife and cord line. The wheel-barrow was painted blue, with the section number clearly painted on the handle, so to be easily seen by the foreman or superintendent, when on the rounds of inspection. At convenient places on each section, piles of crushed stone and gravel were located, from which material was obtained for patching up whatever holes or ruts might appear in the road bed or in the sidewalks. The other streets were cleared up at stated intervals by the rest of the highway force. Where large repairs were to be done or streets resurfaced, the whole force (outside of the section men) was joined together under the local district foreman, and the work carried rapidly forward to completion. In this way the repairs were made, as shown on the table of highway widening and reconstruction, at considerable less time and expense than if carried on simultaneously by the separate district forces.

The improved appearance and condition of the streets thus cared for was quickly noted by citizens. The men appeared to take a pride in their work and their efforts were attended with nearly equal results considering the varying condition, namely: the original condition of the road bed; level or hilly streets; stone curbing or sodded edging; concrete or cobble paved gutters, amount of traffic, etc.

The following method for determining to whom the prizes should be awarded was adopted:—Each member of the Highway Committee, noted from time to time during the year the relative conditions of each section, and marked accordingly to its relative merit, number one being the highest.

The aggregate rating given each section by the members of the committee, indicating the relative merit of the section; that is, the section which has the lowest total marking, receiving the first prize.

The total expenditure by this method was \$4,414.74 or a little less than one cent per square yard of road bed. For the purpose of record and as items of interest to many of the City Government and citizens as to the methods adopted and cost of different classes of work I append the following :

As may be well known the City of Newton has a length of about one hundred and fourteen and two tenths (114.2) miles of accepted streets, and about fifty-five and four tenths (55.4) miles of unaccepted streets, ranging in width from thirty (30) to seventy (70) feet.

It is composed of thirteen villages under one municipal government, and having a population of from 500 to 5,000 each.

But a small percentage of the streets are what may be called country roads.

The highways are under the supervision of a Superintendent, who has three district foremen, who have the immediate supervision of the streets in from 3,000 to 5,000 acres of territory, representing a nearly equal mileage of streets.

Ledge or gravel lots of large area have been purchased in various sections of the city so that the haul for material to any one section is rarely over a mile.

The ledges of the south section of the city are composed largely of conglomerate, in which the rounded or angular stones form a large percentage of the whole mass. The stones are of a granite character and when broken make excellent roads. In the central portion of the city the ledges are largely a green variety of trap resembling Hudson River trap in hardness but not so desirable. In the north part of the city there are but few ledges, but the gravel banks are full of trap and granitic cobble stones of a superior quality.

Each district has two or three stables in which are kept from one to nine horses which are ready for immediate and constant use for any repairs which may be needed.

Wages paid per day of nine hours are as follows:

District foreman,	\$3.50 to \$4.25 per day
Engineer of road roller,	3.00 " "
Masons,	3.50 " "
Pavers,	2.50 " "
Ledge men,	2.00 to 2.50 " "
Drivers (double team)	2.25 " "
" (single team)	2.00 " "
Sub-foremen and graders,	2.00 " "
Laborers,	1.75 " "

The charges made by the city on the highway books in determining the cost of any special work are:

For double team and driver,	\$5.00 per day
" single " " "	3.50 " "
For single load of broken stone of 26 to 28 feet at crusher,	1.05
For double load of broken stone of from 40 to 42 cubic feet, at crusher,	1.75

For rubble stone for foundation for Telford road, fifty cents per cubic yard, except when obtained in the work.

At the above rates Telford and Macadam roads, twelve to fourteen inches deep, having from eight to nine inches of rubble stone foundation placed; four to six inches

of broken stone and one-half inch to one inch surfacing material have been constructed for from 63 cents to 83 cents per square yard.

Macadam roads six to eight inches thick at 40 to 55 cents per square yard. Macadam roads four to six inches thick at 25 to 40 cents per square yard.

The stone breaking plant consists of one stationary and one portable Farrel, Marsdon 9x15 stone breaker, operated respectively by one Atlas engine with horizontal boiler, and one portable Lidgerwood double cylinder engine with vertical boiler. The stationary plant is placed near a ledge of hard green trap stone. The stone is drilled with a Rand Steam Drill and blasted with forcite powder

The drill is operated by steam from a separate boiler; the stone is broken to a size to go in the breaker by hand drilling or with sledge hammers, and taken by horse and cart to the breaker, a distance of 500 feet, and delivered on a platform, level with the top of the hopper.

It is fed into the hopper by two laborers. From the breaker the stone is delivered in four sizes into bins through revolving cylinders with casing of perforated boiler iron. The first is what is known as dust; second, one inch; third, two and a half inch stone; fourth, tailings that have passed by the meshes and out at the end of the cylinder.

The portable crusher is operated at the various gravel lots and some of the ledges at the south part of the city.

The following is a record in detail of the cost of the various items of labor and material which go to make up the total cost of breaking the stone of the different classes.

The stone is measured in the carts as drawn or shovelled from the bins. The units or weight of the stone of the different classes is obtained by weighing several cart loads which have been carefully measured, and found to be as follows, per cubic foot;

	Tailings.	No. 3	No. 2	Dust.
Greenish Trap Rock,	91 lbs.	88 $\frac{1}{4}$	84 $\frac{1}{3}$	95 $\frac{3}{4}$
Conglomerate,	94.4 "	87.7	101	
Cobble Stone,	99.6 "	98	102 $\frac{1}{2}$	

Quantity of Stone Broken.	Hard Green Trap Rock Resembling Hudson Trap in Hardness.	Conglomerate Ledge Stone.	Cobble Stone, Largely Trap Rock.	Cobble Stone, Largely Granite.
Hours run,	412	144	101	198
Cubic yards broken,	3,155	1,288	1,178	1,785
Long ton 2,240 lbs. broken,	3,398	1,446	1,417	2,142
Short ton 2,000 lbs. broken,	3,805	1,620	1,587	2,399
Cubic yards broken per hour,	7.7	8.9	11.8	9.-
Long ton " "	8.2	10.	14.	10.8
Short ton " "	9.	11.2	15.7	12.1
No. cubic yards of tailings,	1,004	378	205	365.
Per cent " "	31.8%	29.3%	17.5%	20.5 %
No. cubic yards 2 $\frac{1}{2}$ in. stone,	1,618	668	672	994.
Per cent 2 $\frac{1}{2}$ in. "	51.3%	51.9%	57%	55.1 %
No. cubic yards 1 in. "	323			
Per cent 1 in. "	10.2%			
No. cubic yards $\frac{1}{2}$ in. " or dust	210	242	300	427.
Per cent $\frac{1}{2}$ in. " "	6.7%	18.8%	25.5%	23.4 %
Average No. of hours worked per day	9	9	9	9
PRICE PAID FOR LABOR PER DAY AND MATERIAL USED.				
Foreman,	3 00	3 00	3 00	3 00
Operator of stone drill,	{ 3 00	{ 3 00		
	{ 1 75	{ 1 75		
Ledgeman,	1 75	1 50		
Engineer of boiler operating stone drill,	2 25			3 00
Engineer operating stone breaker,	2 00	2 25	2 00	2 50
Blacksmith,	2 50	2 25		
Watchman,		1 75	1 75	1 75
Common laborer,	1 75	1 50	1 50	1 75
Water boy,		1 00	1 25	
Two one-horse carts and one driver,	5 00	5 00		5 00
Coal per ton 2,000 lbs.,	5 25	5 25	5 25	5 50
Oil per gallon,	{ 65	{ 65	{ 65	{ 65
	{ 15	{ 15	{ 15	{ 15
Powder per box 50 lbs.,	11 34	11 34	11 34	9 $\frac{1}{2}$ c
Waste per lb.,	9 $\frac{1}{2}$ c	9 $\frac{1}{2}$ c	9 $\frac{1}{2}$ c	\$.447
Cost per cu. yd. stone in bin or crusher, \$.898	\$ 1.113	\$.445		.372
" " long ton, . . . . .	.834	.991	.37	.332
" " short ton, . . . . .	.745	.885	.33	

(Continued on page 22.)

(Continued from page 21.)

Quantity of Stone Broken.		Hard Green Trap Rock Resembling Hudson Trap in Hardness.	Conglomerate Ledge Stone.	Cobble Stone, Largely Trap Rock.	Cobble Stone, Largely Granite.
COST AND PER CENT OF WHOLE COST OF UNITS OF LABOR AND MATERIAL.					
Labor steam drilling.	Cost per cu. yd., .	.092			
	Per cent of cost, .	10.3 %			
	Coal, oil, waste, powder and repairs, .	.084	.018		
Labor hand drilling.	Per cent of cost, .	9.4 %	1.6 %		
	Cost per cu. yd., .	.249	.249		
	Per cent of cost, .		22.3 %		
Sharpening drills and tools.	Cost per cu. yd., .	.069	.023		
	Per cent of cost, .	7.7 %	2.1 %		
	Cost per cu. yd., .	.279	.42		
Breaking stone for crusher.	Per cent of cost, .	31. %	37.8 %		
	Total cost of preparing				
	stone for crusher.	Cost per cu. yd., .	.525	.681	
Filling carts.	Per cent of cost, .	58.4 %	61.9 %		
	Cost per cu. yd., .	.098	.127		
	Per cent of cost, .	11. %	11.4 %		
Carting to crusher.	Cost per cu. yd., .	.072	.062		
	Per cent of cost, .	8. %	5.6 %		
	Cost per cu. yd., .	.053	.053		
Feeding crusher.	Per cent of cost, .	5.9 %	4.7 %		
	Cost per cu. yd., .	.031	.038		
	Per cent of cost, .	3.4 %	3.5 %		
Engineer of crusher.	Cost per cu. yd., .	.079	.05		
	Per cent of cost, .	8.8 %	4.5 %		
	Cost per cu. yd., .	.041			
Coal, oil and waste.	Per cent of cost, .	4.5 %			
	Repairs.				
	Per cent of cost, .				
Moving and setting up	Cost per cu. yd., .		.023		
	Per cent of cost, .		2.1 %		
	Portable crusher.				
Watchman,	Cost per cu. yd., .		4.4 %		
	Per cent of cost, .				
	Per cent of cost, .				
				WHEEL BARROWS.	
					.144
					32.4 %
					.098
					22. %
					.065
					.063
					14.5 %
					.036
					8. %
					.044
					.011
					2.4 %
					.019
					4.2 %
					6.6 %

Bids were opened this year based upon an approximate estimate of the amount of stone to be crushed from the various pits. The contract was awarded to Chas. H. Hale, but on account of his failure the city was obliged to complete it. The prices given are for a cubic yard:

Tons.	Location.	C. H. HALE Newton Upper Falls.		W. H. MAGUE W. Newton.		T. STUART & SON Newton.		M. McDONALD W. Newton.	
5,000	Murray St. ledge .	\$0.65	\$3,250	\$0.93	\$4,650	\$0.92	\$4,600	\$1.34	\$6,720
1,000	Beacon St. ledge .	0.67	670	1.14	1,140	1.31	1,310	1.34	1,340
400	Elliot St. ledge .	0.67	268	0.99	396	1.31	524	1.34	536
600	" " cobbles .	0.65	390	0.55	330	0.94	564	0.70	420
1,000	Florence St. ledge.	0.65	650	0.59	590	0.94	940	0.70	700
700	Pine St. cobbles .	0.65	455	0.41	287	0.94	658	0.65	455
700	Bourne St. cobbles	0.65	455	0.41	287	0.94	658	0.63	441
600	Allison's, cobbles .	0.67	402	0.49	294	0.94	564	0.65	390
600	Almshouse cobbles	0.65	390	0.57	342	0.94	564	0.65	390
	Storage on adjacent lands	0.15		0.17		0.22,3		0.13	
	Allow for Stone al- ready out			0.50				0.50	
Total,		\$6,930		\$3,316		\$10,382		\$11,392	

The city contracts with various contractors for watering the streets at the rate of \$100 per month per cart. They keep the sections to which each cart is assigned well watered and free from dust. The watering of the streets begins as early in April as may be necessary and continues until the first of December. During the months of April and November the streets require watering but a few days, and the payment for these months is based on day service rather than month service.

The number of teams contracted for is fourteen; the number of miles of streets watered is forty and a half.

In the City of Newton the actual frontage available for assessment is seventy-two frontage miles or thirty-six street miles; there being 4.5 miles of street made up of frontage not available for assessment and street intersections which have no frontage.

The Water Department is paid a gross sum of \$2,100 for water. The cost during the year for teams was \$9238.60, and for clerical hire \$199.95, making a total expenditure for watering streets of \$11,538.57.

This sum divided by the number of miles of street, whose frontage is available for assessment, will equal \$326 per mile making a cost of six cents per foot of street available for frontage assessment, and three cents per foot of frontage.

It is estimated that the city pays about half, or in order that there should be no legal question raised the assessment made on the estates was at the rate of 1 1-2 cents a front foot, or a sum estimated not to exceed sixty per cent. of the cost.

At the above rate of assessment the net income was forty-nine per cent. of the cost.

The contract for constructing tar concrete sidewalks, street crossings and gutters, was awarded to Simpson Brothers, of Boston and Newton, at the following prices, the sidewalks and road bed being prepared by the highway department. In the construction of new sidewalks, one-half of the cost is paid directly to the contractor by the abutters

Sidewalks, new. Seventy-five cents per square yard (one half paid by the abutters).

Sidewalks repaired, two layers, fifty cents per square yard.

Sidewalks repaired, skimcoat, forty cents per square yard.

Street crossings, new ; \$1.05 per square yard.

Street crossings repaired, two layers ; sixty-five cents per square yard.

Street crossings repaired, skim coat ; fifty-eight cents per square yard.

Gutters, hard surfaces ; \$1.15 per square yard.

The mileage of concrete sidewalks and street crossings in the several wards is as follows :

Ward 1,	. . . . .	7.30 miles
Ward 2,	. . . . .	9.12 "
Ward 3,	. . . . .	5.88 "

Ward 4,	. . . . .	5.78	"
Ward 5,	. . . . .	4.08	"
Ward 6,	. . . . .	7.76	"
Ward 7,	. . . . .	9.88	"
		<hr/>	
Total,	. . . . .	49.80	

The question of paved gutters was considered to some extent by the Committee last year, and it was felt that when ever possible it was economy in the long run to put in concrete gutters rather than cobble stone paving, although the first cost was somewhat greater.

The cobble stones wash out in time and need frequent resetting; then the weeds grow up rapidly between the cobbles and unless they are removed they cause obstruction to leaves etc., and the gutter clogs up. The work of cleaning out the weeds is slow and very tiresome, and not at all satisfactory.

On the other hand the concrete gutters wear well and are always clear of weeds and easy to clean. Those put in by the City on Centre Street several years ago are as good today as when first laid.

I would draw the attention of the Committee to this fact, and advise the more frequent use of tar concrete for gutters than has hitherto been the practice, for I think that it would be a matter of economy.

Following is the list of concrete gutters laid the past year with their cost.

Church Street, Ward 7,	659 linear feet,	\$426.38
Hunnewell Terrace " "	572 " "	425.09
Washington Street " "	1076 " "	757.13
		<hr/>
Total,	2307	\$1608.60

Curbing.

Amount appropriated by order of the City Council

for the year 1891. \$2,500 00

Total expended as per superintendent's and as-

stant superintendents' record of work . . . 2,146 54

Balance unexpended . . . \$353 46

The following table shows the number of linear feet, kind and cost of curbing which has been laid:—

Streets.	Wards.	Linear feet of straight curbing.	Linear feet of curved curbing.	Total length of curbing.	Cost.
Auburn St., . . .	4	21 00	—	21 00	\$ 17 16
Chapel and Watertown Sts.	3	143 15	26 20	169 35	137 88
Church St., . . .	7	128 65	31 50	160 15	131 39
Nonantum Place, . .	7	59 25	—	59 25	44 19
Pearl and Emerson Sts., .	7	239 50	24 00	263 50	212 04
Pearl and Gardner Sts., .	1	19 00	19 80	38 80	40 61
Washington St., . .	2	119 70	—	119 70	92 52
“ “ “	4	74 00	—	74 00	52 05
“ “ “	7	489 30	—	489 30	385 18
Winthrop and Perkins Sts.,	3	724 90	24 90	749 85	470 48
Stock, . . .		1,027 00	27 00	1,054 00	556 65
Miscellaneous, . . .		17 60	—	17 60	8 80
Total, . . .		2,902 80	153 40	3,056 20	\$2,146 54

Drains and Culverts.

Amount appropriated by order of

City Council for the year 1891 \$7,000 00

Amount appropriated for special

drains, . . . 20,000 00

Total appropriations,

\$27,000 00

Amount expended as per superin-

tendent's and assistant super-

intendents records of work \$22,657 46

Amount charged by Auditor to

other appropriations . . . 208 42

Amount expended as per Auditor's

records, . . .

\$22,449 04

Amount unexpended,

\$4,550 96

The following table shows the cost, etc., of catch-basins, culverts, and drains, constructed or re-constructed during the year, and the streets in which the same were built:

Drains Constructed in 1891.

Street.	Size in inches.	Length in feet.	Average Cut.	Man Holes.	Catch Basins.	Feet of Inlets.	Size of inlets in inches.	Cost.	Location
Court, . . .	15	83	4.0	1	—	—	* 8	\$ 406.84	Washington st to Angle
	12	427	5.4	1	5	78	8		
	21	33	4.0	1	1	3	8		
Otis, . . .	12	524	4.1	—	3	56	8	1419.34	Murray st, to Kimball [Ter.
Murrry, . . .	21	692	4.5	—	—	71	8		Otis to Highland ave.
Linwood ave.,	12	560	—	1	—	—	—	613.60	Walnut st to Linw'd ave
Lenox, . . .	12	721	7.2	—	4	81	8	602.35	
	21	156	—	—	—	—	—		
Hillside ave.,	20	264	6.3	—	—	—	—	613.98	Mt. Vernon st to Angle
	15	18	—	—	—	—	—		
	18	47	6.6	1	2	22	8		
Woodland ave.	15	795	7.4	1	6	71	8		West of Grove st. to
	12	84	5.7	—	4	67	8		Maple.
	20	178	5.5	2	1	5	8	4081.99	
Maple, . . .	18	361	5.6	1	2	23	8		
	15	36	7.1	—	1	7	8		Woodland ave to Berk-
	20	261	5.1	1	—	—	—		ley Pl.
Berkeley pl .	†	627	4.3	—	—	—	—		Maple st to Brook.
	20	1334	6.3	1	4	74	8		Chestnut to So. Meadow
Oak, . . .	18	105	7.4	—	1	35	8		Brook.
	18	108	7.7	—	1	12	8	2334.94	
Chestnut . .	15	239	7.1	—	3	72	8		Linden st to beyond Oak
	12	94	7.1	—	2	65	8		
Sumner	15	745	4.5	—	7	187	8	\$ 1348.29	Ward st to Brook.
	36 x	—	—	—	—	—	—		
	38½	72	4.4	—	—	4	12		
River, . . .	30 x	—	—	—	—	—	—	2961.77	Near Pine st to beyond
	32½	202	8.6	1	—	38	8		Lexington
	21	895	—	—	1	41	8		
	20	28	10.3	—	1	13	15		
						35	12		
Central ave.,	18	710	6.0	2	7	83	9	1760.91	Washington st to Brook
						92	8		
Washington	18	107	6.4	1	2	123	8	—	Central ave to Walnutst
	15	340	4.4	—	6	166	8		
Chestnut, . .	12	164	6.4	—	1	20	8	134.97	At Highland st
Newtonville ave.	8	146	4.5	—	1	—	—	93.15	Laundry Brook west'ly
North, . . .	10	191	3.2	—	1	—	—	89.44	Cheesecake br'k west'ly
Otis, . . .	9	246	2.2	—	2	30	8	117.17	Near Walnut st.
	15	408	—	—	9	226	8		
Hammond . .	12	262	—	—	—	—	—	(xxx)	Kingsbury to Chestnut.
	10	124	—	—	—	—	—		
Emerson, . .	—	—	—	—	2	36	8	(xxx)	Hill Road at Pearl st
		12342		15	80	1836		16568.74	

*Pipe bought in 1890.

†Stone culvert with brick arch.

(xxx)Cost included in widening, reconstruction and improvement,

Drains above 21 inches are brick.

Drains less than 21 inches in diameter are akron or cement drain pipe.

‡Includes culverts 5 x 8 x 44 feet.

The following miscellaneous items of expenditure have also been charged to drains and culverts.

Auburndale ave., stone drain, . . .	\$ 13 48
Beacon street, repairing drain, . . .	12 34
Boylston street, cleaning, . . .	1 88
Cabot street, repairing culvert, . . .	115 85
California street, cleaning, . . .	3 74
Care of water, . . .	503 80
Catch basin repairs . . .	206 44
Church street, repairing drain. . .	104 84
Cleaning catch basins, . . .	2296 03
Cleaning grates, . . . ; . . .	253 35
Crescent street, repairing culvert, . . .	5 11
Faxon street, repairing drain, . . .	87
Gardner street, repairing catch basin, . . .	15 43
Grant avenue, repairing drain, . . .	66 28
“ “ building catch basin, . . .	34 23
Grove street, building drain . . .	57 16
Hamilton street, building catch basin . . .	60 26
Hancock street, repairing drain . . .	4 73
Hillside avenue, repairing drain, . . .	2 75
Hyde Brook, repairing drain, . . .	283 07
Kenrick Park, repairing drain, . . .	3 80
Newtonville drain, cleaning, . . .	14 84
Park street, connecting drains, . . .	34 16
Pearl street, repairing drain, . . .	3 89
Pearl street, building drain, . . .	24 83
Prince street, repairing drain, . . .	19 55
Prospect street, cleaning, . . .	5 25
Putnam street, connecting drains, . . .	18 05
Sargent street, repairing catch basin . . .	5 50
Staniford street, repairing drain . . .	4 00

Amount carried forward,

\$4,175 51

HIGHWAYS.

29

<i>Amount brought forward,</i>	\$4,175 51
Stock on hand paid for from the appropriation for 1891	593 71
Temple street, building catch basin,	28 77
Tools,	260 39
Tremont street, connecting drain,	19 48
Truck house, cleaning tools	8 71
Valentine street, connecting drain,	51 43
Vista avenue, building catch basin	44 60
Waban street, building catch basins	76 71
Walnut Park, repairing drain,	6 60
Walnut street, building catch basins,	97 75
Waltham street, building culvert	546 17
Washington street, repairing drain,	40 72
Watertown street " "	7 48
Winthrop street, „ culvert,	78 85
Woodbine street, cleaning	2 35
Sundries,	49 49
Total,	6,088 72

Gravel Lands.

Amount appropriated by order of
the City Council for the year
1891, \$1,000 00

Amount expended as per superin-
tendent's and assistant super-
intendents' record of work 731 03

Balance unexpended . \$268 97

The above amount has been expended for the purchase of gravel.

Highways, General Repairs.

Amount appropriated by order of the City Council for the year 1891,	\$75,000 00
Amount received for services of employees and for materials sold and transferred to general appropriation,	1,202 21
	<hr/>
Total appropriation	\$76,202 21
Amount expended as per superin- tendent's and assistant super- intendents' record of work	\$60,361 74
Amount charged by Auditor in excess	3,704 96
	<hr/>
Amount expended as per Auditors' records,	\$64,066 70
	<hr/>
Balance unexpended,	\$12,135 51
The following table will show in detail the amount ex- pended on each street for maintenance, as made up from the superintendent's and assistant superintendents' record of work.	
Adams street,	\$ 140 78
Arlington street.	40 89
Ash street,	28 30
Auburn street,	205 53
Auburndale avenue	62 32
Austin street,	33 92
Bacon street,	26 36
	<hr/>
<i>Amount carried forward,</i>	\$538 10

HIGHWAYS.

31

<i>Amount brought forward,</i>	\$538 10
Baldwin street,	5 65
Beach street,	8 85
Beacon street,	36 36
Beaumont avenue,	19 26
Beaumont street,	7 31
Bellevue avenue,	15 25
Bellevue street,	481 06
Belmont street;	16 17
Bennington street,	23 61
Berkeley Street,	60
Bourne street,	12 50
Bowers street,	14 14
Boyd street,	11 10
Boylston street,	475 63
Bridge street,	18 39
Brighton,	74 99
Brighton Hill,	27 49
Brookside avenue,	18 43
Cabot street,	78 03
California street,	46 76
Carleton street,.	39 60
Central avenue,	36 99
Central street,	306 42
Centre street,	2,348 95
Chapel street,	40 32
Charles,	36 92
Cheesecake Brook,	208 51
Cherry street,	35 82
Chestnut street,	8 02
Church street,	243 49
Circuit avenue,	21 50
Clyde street,	26 76

Amount carried forward,

\$5,282 98

<i>Amount brought forward,</i>	\$5,282 98
Columbus street,	72 12
Concord street,	28 06
Copley street,	30 79
Cottage street,	4 11
Court street,	28 82
Craft street,	278 20
Cross street,	9 39
Cypress street,	25 97
Dedham street,	4 38
Derby street,	3 68
Durant street,	23 62
Edinboro street,	4 82
Eldridge street,	15 43
Eliot street,	268 64
Elm street,	7 00
Everett street,	43 56
Fairmount avenue,	28 77
Farlow Park,	4 31
Farwell street,	4 87
Fayette street,	12 75
Forest avenue,	12 43
Forest street,	71 76
Franklin street,	29 13
Freeman street,	104 23
Fuller street,	369 86
Gardner street,	3 57
Gibbs street,	124 45
Grafton street,	293 02
Greenough Street Brook,	48 03
Grant avenue,	25 24
Grassmere street,	16 72
Grove Hill avenue,	50 42
<i>Amount carried forward,</i>	<hr/> \$7,331 13

<i>Amount brought forward,</i>	\$7,331 13
Grove street,	34 72
Hall street,	6 30
Hamilton street,	22 85
Hammond street,	211 09
Harvard street,	28 77
Highland avenue,	124 38
Highland street,	23 74
Hillside avenue,	70 42
Hollis street,	37 30
Homer street,	114 91
Hovey street,	2 25
Howard street,	17 77
Hunnewell avenue,	87 79
Hunnewell terrace,	121 06
Hunter street,	71 23
Hyde avenue,	93 66
Irving street,	30 00
Ivanhoe street,	1 29
Jefferson street,	23 62
Jenison street,	5 44
Jewett street,	8 56
Judkins street,	11 66
Kenilworth street,	8 66
Kenrick park,	136 27
Kenrick street,	97 07
Kimball court,	6 03
Kimball terrace,	6 39
Kingsbury street,	11 54
Lakeview avenue	53 56
Lexington street,	62 18
Lincoln street,	59 81
Linder terrace	28 41

Amount carried forward,

\$8,949 86

<i>Amount brought forward,</i>	\$8,949 86
Linwood avenue	23 08
Lombard street,	66 48
Lothrop street,	5 42
Lowell street,	74 36
Maple street,	21 79
Marlboro street,	14 62
Marshall street,	29 95
Middle street,	6 34
Mill street	17 71
Montrose street,	7 02
Mount Ida street,	12 20
Mount Vernon street	17 16
Morse street,	38 56
Murray street,	51 87
Needham street,	53 87
Nevada street,	78 97
Newton square,	275 14
Newton Highlands,	20 08
Newtonville avenue,	454 23
Newtonville square,	461 67
Nonantum place,	328 40
Nonantum square,	30 48
Nonantum street,	36 30
North street,	72 42
North school street,	22 35
Oak Hill district,	1194 86
Orchard street,	13 80
Otis street,	2150 44
Park street,	260 96
Parsons street,	17 47
Peabody street,	24 43
Pearl street	768 24
<i>Amount carried forward,</i>	\$15,599 92

HIGHWAYS.

35

<i>Amount brought forward,</i>	\$15,599 92
Pembroke street,	78 31
Perkins street,	13 87
Pine street,	52 58
Preseott street,	16 85
Princee place	9 25
Princee street,	28 71
Prospect avenue,	5 68
Richardson street,	18 58
River path,	54 77
River street,	148 13
St. James street,	13 60
Sargent street,	276 35
Sections Nos. 1, 2, 3 and 7,	2,340 26
Sections Nos. 4, 5 and 6,	1,077 93
Sections Nos. 8, 9 and 10,	996 55
Skinner land,	12 14
South street,	12 27
Spruce street,	4 50
Stanton avenue,	4 00
Station street,	8 50
Summer street,	13 70
Summit street,	38 68
Temple street,	186 90
Thornton street,	97 17
Town street,	23 39
Tremont street,	119 30
Turner street,	23 03
Union street,	316 00
Valentine street,	89 54
Vernon street,	60 58
Waban street,	10 80
Walker street,	9 75

Amount carried forward, \$21,761 59

<i>Amount brought forward,</i>	\$21,761 59
Walnut street,	926 07
Waltham street,	481 20
Washington park,	18 01
Washington street,	2,448 86
Watertown street,	977 13
Waverley avenue,	1,087 82
Wesley street,	13 07
West street,	25 55
Williams street,	4 37
Willow street,	102 31
Winchester street,	78 10
Wiswall street,	9 76
Winthrop street,	173 32
Woodbine street,	55 44
Woodland avenue,	100 52
Broken stone to private parties,	946 70
Care of snow,	3,129 21
Cleaning crossings,	825 10
Cleaning gutters,	5,263 19
Gravel pits,	2,615 33
Patching streets,	2,728 50
Picking stones,	544 87
Portable engine,	357 38
Purchase of horses,	1,290 00
Repairing crusher,	379 07
Repairing tools,	314 80
Repairing washouts,	194 77
Road scraper,	11 70
Sanding sidewalks,	1,382 16
Stable account,	3,646 02
Steam drill,	3 87
Steam roller,	620 48
<i>Amount carried forward,</i>	<hr/> \$52,516 27

<i>Amount brought forward,</i>	\$52,516 27
Stone sifters,	40 70
Storing stone,	1,559 31
Superintendent's salary,	2,500 00
Tools,	1,218 59
Randall's highway yard,	4 73
Miscellaneous,	2,532 14
	<hr/>
Total,	\$60,361 74

Highway Widening and Reconstruction.

Amount appropriated by the City Council for the year 1891	\$25,000 00
Amount expended as per superintendent's and assistant superintendent's record of work,	22,581 07
Amount charged by auditor to other appropriations,	292 93
	<hr/>
Amount expended as per auditor's records,	\$22,288 14
	<hr/>
Balance unexpended,	\$ 2,711 86

The following table shows in detail the expenditure under this appropriation:—

STREET.	WARD.	LOCATION AND DESCRIPTION OF WORK.	COST.
Arlington, . . .	7	Between Belmont and Marlboro Sts.	\$ 990 04
Bellevue, . . .	1	Centre St. to Newtonville ave., .	1,257 43
Boyd and Emerson, .	1	Includes \$69,26 for drain, . . .	1,393 67
Boylston, . . .	5	From Circuit ave. to Rockland Place	1,927 24
Cabot and Harvard, .	2	Washington to Walnut St., . . .	1,766 11
Centre, . . .	5,6	From Rogers to Clark St., . . .	2,428 17
Chapel, . . .	2	From Watertown St. north, . . .	1,996 82
Elliot, . . .	5	Oak St. to Columbia ave., . . .	800 00
Hammond, . . .	6	Through the ledge east of Beacon St.	960 32
Hammond, . . .	6	From B. & A. depot to Kingsbury St. (this includes \$894,38 for drain)	3,277 33
Pearl, . . .	1	Jewett to Garden Sts., . . .	300 01
Woodland ave., .	4	Washington to Maple Sts, . . .	2,609 35
Woodland ave., .	4	Maple St. to Central ave., . . .	1,876 80
Washington, . . .	4	Wales St. to Charles river, . . .	997 78
		Total,	\$22,581 07

Removal of Ashes.

The collection of ashes is made by the highway department, under the direction of the Highway Surveyors:

Amount appropriated by order of the City Council

for the year 1891, \$5,000 00

Total amount expended as per superintendent's

and assistant superintendents' records of

work, 4,933 37

Balance unexpended, \$66 63

The following statement will show the cost of the collection of ashes for each ward, and the day of the week on which the collection is made:

Wards 1 and 7, Thursday, \$1,270 98

Ward 2, Friday, 859 57

Ward 3, Saturday,	759 62
Ward 4, Monday,	624 96
Ward 5, Tuesday,	591 60
Ward 6, Wednesday,	715 96
Cost of labor, as per superintendent's and as-	
sistant superintendents' records of work, .	\$4,822 69
Maintenance of carts and harnesses,. . .	55 86
Blacksmithing,	54 82
Total,	<u>\$4,933 37</u>

Sidewalks and Street Crossings.

Amount appropriated by order of	
the City Council for the year 1891,	\$18,000 00,
Amount expended as per superintendent's	
and assistant superintendents' record	
of work,	\$19,229 00
Amount charged by Auditor to	
other appropriations,	<u>1,769 80</u>
Amount expended as per Auditor's records,	<u>\$17,459 20</u>
Balance unexpended,	\$540 80

The following table shows the number of square yards of concrete sidewalks and street crossings, laid and repaired, and the cost of all sidewalks and crossings constructed during the year :

STREET.	WARD.	SQUARE YARDS OF CONCRETE.						COST.	REMARKS.
		SIDEWALKS.			CROSSINGS.				
		New.	Relaid.	Repaired.	Repaired.	New.			
Alpine,	3	.....	.....	.....	.....	.....	\$ 29 78	Gravel.
Auburndale ave.,	4	.....	.....	.....	.....	.....	129 78	Gravel.
Bacon,	7	.....	.....	.....	.....	.....	15 38	Gravel.
Beacon,	4	.....	.....	.....	60 12	.....	264 82	Partly gravel.
Beacon,	6	.....	.....	.....	79 09	.....	146 16	Partly gravel.
Bellevue,	1	.....	327 00	.....	.....	.....	343 72	
Berkeley,	3	.....	.....	.....	32 04	.....	46 38	
Bourne,	4	.....	.....	.....	.....	.....	86 89	Gravel.
Bowdoin,	5	41 67	.....	.....	.....	.....	213 69	Partly gravel.
Bowen,	6	.....	.....	.....	.....	.....	5 50	
Boyd,	1	.....	74 28	48 30	36 08	.....	140 41	
Cabot,	7	.....	.....	.....	54 44	.....	59 63	
California,	1	.....	.....	.....	.....	.....	9 50	Gravel.
Carleton,	7	.....	.....	.....	.....	.....	25 40	Gravel.
Centre,	2,6	.....	22 72	.....	.....	.....	99 11	Partly gravel.
Central ave.,	2	.....	12 48	.....	.....	.....	9 36	
Chapel,	2	182 38	.....	.....	.....	.....	117 40	
Charles,	4	.....	.....	.....	.....	.....	39 50	Gravel.
Cherry,	3	.....	116 00	.....	.....	.....	87 00	
Chestnut,	3	.....	.....	.....	28 50	.....	161 21	Partly gravel.
Church,	1	.....	591 88	18 00	.....	26 74	781 22	
Church,	7	75 58	241 23	368 44	105 53	.....	652 77	
Clark,	6	.....	.....	.....	.....	.....	72 62	Gravel.
Clyde,	2	547 44	.....	.....	50 71	.....	349 21	
Columbus,	5	.....	.....	.....	30 29	.....	144 40	Partly gravel.

Concord,	.	.	4	.....	.....	17 07	.....	85 16	....	136 29	Partly gravel.
Copley,	.	.	7	.....	.....	.....	.....	.....	9 80	.....	Gravel.
Cotton,	.	.	6	.....	.....	.....	.....	.....	12 75	.....	Gravel.
Craft,	.	.	2	95 61	.....	.....	.....	.....	80 00	.....	Gravel.
Crescent,	.	.	3	.....	.....	.....	.....	.....	28 74	.....	Gravel.
Crystal,	.	.	6	.....	.....	.....	.....	.....	16 25	.....	Gravel.
Cypress,	.	.	6	.....	.....	.....	.....	.....	122 13	.....	Gravel.
Davis,	.	.	3	.....	.....	.....	.....	.....	37 85	.....	Gravel.
Derby,	.	.	3	.....	.....	.....	.....	.....	68 23	.....	Gravel.
Durant,	.	.	7	.....	.....	.....	.....	.....	20 46	.....	Gravel.
Eldridge,	.	.	7	.....	67 14	36 14	.....	.....	68 99	.....	.....
Elmwood,	.	.	7	120 30	.....	94	.....	.....	50 10	.....	.....
Emerson,	.	.	7	80 50	.....	.....	.....	27 34	39 25	.....	Partly gravel.
Fairmount ave.,	.	.	1	.....	.....	.....	.....	.....	92 85	.....	Gravel.
Fairview,	.	.	7	.....	.....	.....	.....	.....	30 58	.....	Gravel.
Fayette,	.	.	1	.....	.....	.....	.....	.....	4 82	.....	.....
Forest,	.	.	5	.....	127 92	7 75	.....	.....	95 02	.....	Gravel.
Fountain,	.	.	3	.....	.....	.....	.....	.....	26 75	.....	.....
Franklin,	.	.	7	.....	.....	132 98	.....	46 04	157 44	.....	.....
Fuller,	.	.	3, 4	.....	.....	.....	.....	.....	86 37	.....	Gravel.
Gardner,	.	.	1	69 77	.....	26 62	.....	.....	116 85	.....	.....
Gibbs,	.	.	6	116 97	.....	30 45	.....	.....	88 86	.....	.....
Glenwood ave.,	.	.	6	.....	.....	.....	.....	.....	26 25	.....	Gravel.
Grafton,	.	.	6	.....	.....	.....	.....	.....	16 15	.....	Gravel.
Grant ave.,	.	.	6	.....	.....	.....	.....	.....	239 51	.....	Gravel.
Grassmere,	.	.	7	107 72	.....	.....	.....	.....	51 75	.....	.....
Grennough,	.	.	4	.....	.....	.....	.....	.....	8 22	.....	Gravel.
Grove,	.	.	4	.....	.....	.....	.....	.....	115 17	.....	Gravel.
Hall,	.	.	1	.....	.....	.....	.....	.....	18 85	.....	.....
Hamilton,	.	.	4	.....	.....	.....	.....	.....	29 00	.....	.....
Hamilton,	.	.	4	.....	.....	.....	.....	.....	2 25	.....	.....

STREET.	WARD.	SQUARE YARDS OF CONCRETE.						COST.	REMARKS.
		SIDEWALKS.			CROSSINGS.				
		New.	Relaid.	Repaired.	Repaired.	New.			
<i>Brought forward,</i>									
Hammond,	6	.....	.....	.....	99 06	.....	487 41	Pl'k and gravel.
Hartford,	5	83 85	.....	.....	.....	.....	42 40	
Harvard,	2	128 50	.....	.....	.....	.....	56 86	
High,	5	.....	.....	.....	.....	.....	6 13	Gravel.
Highland ave.,	2	38 26	212 72	640 30	.....	.....	570 50	
Higland,	3	.....	270 77	472 96	38 72	23 53	649 44	
Hillside ave.,	3	163 37	.....	.....	.....	.....	143 01	
Homer,	6	.....	.....	.....	.....	.....	15 38	Gravel.
Hovey,	1	.....	3 33	106 99	.....	.....	72 85	
Hunnewell ave.,	7	483 65	.....	.....	.....	.....	326 25	
Hunnewell ter.,	7	294 64	.....	.....	.....	.....	167 85	
Hunter,	3	.....	.....	.....	.....	.....	11 97	Gravel.
Hyde ave.,	7	.....	.....	.....	.....	.....	7 43	Gravel.
Institution ave.,	6	113 16	.....	.....	.....	.....	61 43	
Jenison,	2	95 07	6 01	.....	.....	.....	63 46	
Jewett,	1	.....	45 99	24 81	.....	.....	55 07	
Judkins,	2	123 90	.....	.....	.....	.....	129 74	Partly gravel.
Kenilworth,	7	.....	.....	8 42	79 88	.....	90 94	
Kenrick park,	7	.....	133 89	.....	.....	.....	176 38	
Kimball ter.,	6	.....	.....	.....	.....	.....	5 79	Gravel.
Lake Ave.,	5	.....	.....	.....	31 30	.....	32 86	
Laurel,	6	.....	.....	.....	19 30	.....	20 26	
Lenox,	3	.....	.....	.....	.....	.....	11 50	Gravel.
Lincoln,	5	76 60	.....	1 15	59 69	.....	107 85	

STREET.	WARD.	SQUARE YARDS OF CONCRETE.				COST.	REMARKS.
		SIDEWALKS.		CROSSINGS.			
		New.	Relaid.	Repaired.	New.		
Tremont, .	7	.....	.....	.....	.....	5 14	Gravel.
Valentine, .	3	.....	.....	.....	.....	354 57	Gravel.
Vernon, .	7	.....	.....	.....	.....	165 93	Gravel.
Vista ave., .	4	.....	255 90	.....	.....	80 95	Gravel.
Waban, .	1	.....	.....	.....	.....	72 81	Gravel.
Walnut Park, .	2	.....	.....	.....	.....	4 11	Partly gravel.
Walnut, .	2	.....	.....	54 07	74 39	643 80	Gravel.
Walnut, .	5	.....	.....	.....	81 45	85 44	Gravel.
Walcott, .	4	.....	.....	.....	.....	5 87	Gravel.
Washington Park, .	2	.....	.....	.....	.....	6 52	Gravel.
Washington, .	1	.....	310 12	558 91	66 58	831 30	Partly gravel.
Washington, .	2	.....	302 91	230 92	210 97	662 69	Partly gravel.
Washington, .	3	.....	.....	247 06	12 92	197 17	Partly gravel.
Washington, .	4	64 19	.....	.....	38 75	212 26	Partly gravel.
Washington, .	7	233 19	163 11	459 53	127 55	1,253 82	Partly gravel.
Watertown, .	1,2	56 83	10 77	.....	83 45	167 80	Partly gravel.
Waverley ave., .	7	439 11	41 10	.....	123 52	439 02	Partly gravel.
Webster, .	3	769 61	.....	.....	.....	662 30	Partly gravel.
Winthrop, .	3	.....	2 50	.....	.....	616 79	Partly gravel.
Woodland ave., .	4	.....	.....	.....	127 64	216 53	Partly gravel.
Totals,	.	6,144 38	14,520 32	3,563 95	2,213 34	\$19,229 00	

Trimming Trees.

There has been expended for trimming trees the sum of \$599,91, which has been charged to the appropriation for miscellaneous expenses.

Watering of Streets.

Amount appropriated by the City		
Council for the year 1891, .		\$13,500 00
The appropriation was expended as follows:—		
Paid Water Department for use of		
water,	\$2,100 00	
Timothy Stuart, watering Ward 1,		
and southeast part of Ward 7,	1,965 00	
John Joyce, watering north part of		
Ward 7,	667 83	
William H. Mague, watering Wards		
2, 3 and 4,	3,946 66	
Thomas R. Frost, watering Ward 6,	1,964 80	
J. P. Keating, watering Ward 5,	670 33	
Newton Cemetery Corporation,		
watering on Walnut street,		
by cemetery,	24 00	
Miscellaneous bills,	199 95	
Total amount expended,		11,538 57
Balance unexpended,		\$1,961 43

WATER DEPARTMENT.

The meetings of the Water Board have been attended and such miscellaneous work performed as has been required by the officers of the department.

Surveys have been made, levels taken and lines given for the laying of water mains in 54 streets, having a total length of 41,415.5 feet, or about 7.84 miles. There have been located 298 services and renewals during the year.

Settlement for land taken for additional water supply has been made with 31 parties, representing an area of 297-31.100 acres, and negotiations have been entered into for a settlement for a large portion of the balance of the land taken, and there is every indication of an early adjustment of the same. Surveys and plans have been made which contemplate a re-adjustment of the line of seizure. By making the proposed change the city will acquire rights in certain desirable strips of land, and will abandon small areas of land of but little use for purposes of water supply.

Plans for obtaining an additional water supply from the land taken for that purpose, were made and submitted to the Water Board, and accepted by the Board at their meeting held May 22, 1891.

The plan contemplates the extension of the covered conduit from Kenrick street, nearly parallel to the river, to or near the Needham line, with branch lines extending along the edges of the hard land. These extensions should be made from time to time as the increased daily use of water may require.

Filtering Conduit.

Plans, specifications and contracts for placing gravel filling in the portion of the filtering basin in which the conduit was laid, and for grading and loaming over the new conduit, were prepared, and the following proposals received on Feb. 13, 1891, based upon the placing of 9,600 cubic yards of gravel filling, and for moving about 1,600 yards of loam to or from spoil banks, and grading slope and banks about the filtering conduit.

Canvas of Bids.

	Gravel per cu. yd.	Loam per cu. yd.	Amounts.
J. A. Cahill,	18c.	26 1-2c.	\$2,152 00
T. F. Mague,	19c.	23c.	2,192 00
M. McDonald,	20c.	30c.	2,400 00
C. H. Hale,	22c.	25c.	2,512 00

The contract was awarded to Mr. J. A. Cahill, of Newton Upper Falls, on Feb. 17, 1891, and the work performed in a satisfactory manner.

The gravel filling was taken from the gravel bank adjacent to the filtering basin on the city property. As the filling was placed, the stones were raked to the bottom of the dump and retained near the filtering conduit, care also being taken to have the best gravel placed over the conduit.

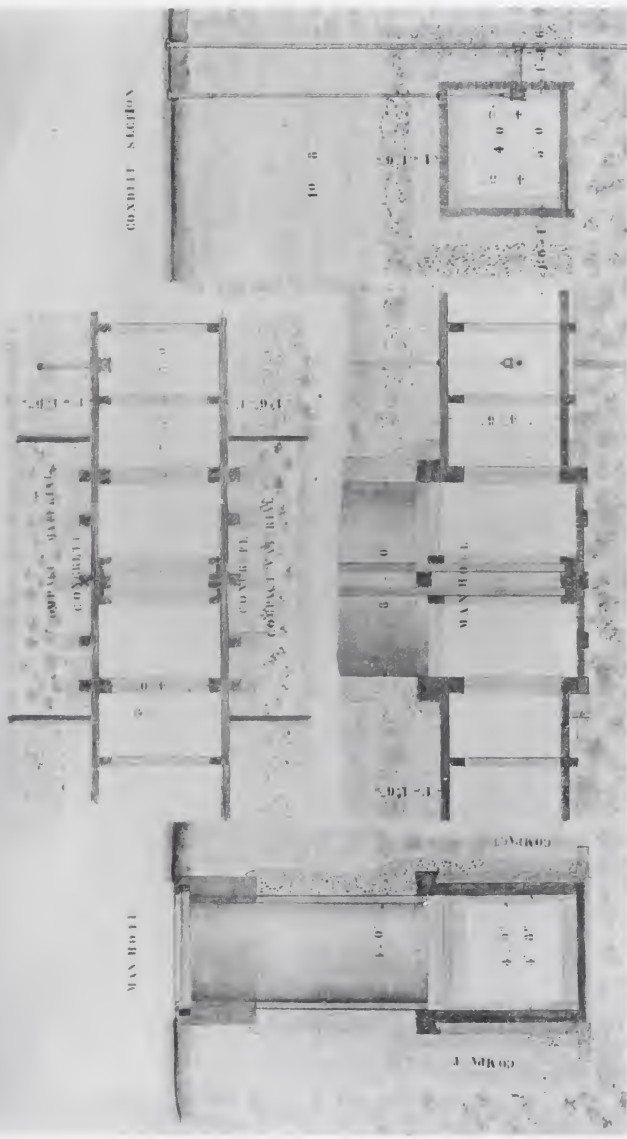
This filling was levelled off to a grade ten feet above the axis of the conduit. The manholes were finished off to a grade of twelve feet above the axis of the conduit.

The embankment around the basin was replaced where damaged on account of the construction of the conduit.

The grounds along the line of the filtering conduit were graded and levelled off, making the surface everywhere on a gentle incline from the bank of the river across the conduit line to the high ground above, thus furnishing means for the drainage of surface water to the river. The filling of several low places of considerable area required a large amount of extra filling.

NEWTON FILTERING CONDUIT

PLAN



Loam was spread and grass seed sown over the line of the conduit from Kenrick street to the end of the old basin, covering a length of 2,220 feet, and a width of from 50 to 150 feet.

The excavation for several hundred feet at the upper end of the conduit was made through several feet of muck, which was removed over a section of fifteen or more feet wide on each side of the conduit, and the space filled with clean gravel or sand.

The following is a memorandum of the actual cost of the work:—

For placing 10,906 cu. yds. of gravel filling at 18c.	\$1,963 08
For grading and placing 2,338 cu. yds. of loam at 26½c.	619 57
For pay of labor and teams including extra work and filling, which could not be satisfactorily measured,	2,109 54
	<hr/>
	\$4,692 19

The amount of water used during the year has not been sufficient to determine the amount of additional supply, which may be expected from the extension of the works, but there is every indication it will be fully equal to that anticipated, and the results of the work have proved so far entirely satisfactory.

Pumping Station.

The contract with the Blake Manufacturing Co. required that the brick foundations and sub-foundations be put in by the city. The location for the new pumps was occupied below the cellar floor by the old brick foundations on which the old pumps originally sat, and the concrete blocks built in below it in 1882, in attempts to prevent settlement that was taking place at that time, by enlarging the area of the foundation. There were also the concrete and brick foundations of the small pumps to be removed.

The material below these old foundations was fine gravel with veins of quicksand of varying thicknesses, and the ground water rose to within one and one-half feet of the cellar paving.

On the opposite side of the building were the solid concrete and hard pine foundations for the Worthington pumps, put in in 1883, and extending over half the width of the building.

This foundation extended down to grade 84.75 on the edges, and 85.75 in the central portion. The level of the bottom of the new brick foundations called for by the plans prepared by the Blake Manufacturing Co. was 92.33, with a small section under the air pump down to 90.33.

The sub-foundations for the pumps occupied the entire eastern portion of the building, and the excavation made to grade, and the entire space filled with American cement concrete, composed of one part of American cement, two parts sand, and five parts stone.

In order to give additional rigidity to the mass, pieces of old iron railroad rails twenty-nine feet long were laid in the bottom of the excavation, and the concrete laid over them.

A Carson trench machine was rigged up, passing through the northwest window of the engine room, and used for removing the material excavated, and gave satisfactory economic results.

Contracts and specifications for furnishing the granite and putting in the brick work for the foundations were prepared, and proposals were received from the following parties : —

Leach & Grant, of Boston, at \$7.00 per cu. yd.,	\$760 55
Burnham & Davis, of Newton, at \$8.67 per cu. yd.,	913 00

For furnishing granite necessary in pump foundations : —

Robert M. Gill & Co., Waltham,	\$695 00
F. A. Hale, Fitchburg,	720 00

F. A. McAuliffe, Fitchburg,	740 00
Geo. Terrell, Fitchburg,	825 00
Alex. McDonald, Cambridge,	875 00

Mr. Gill not bidding with a full understanding of the requirements of the contract, and declining to take the contract upon the terms called for, the contract was awarded to Mr. F. A. Hale of Fitchburg, for the sum of \$720 — the contract for brick work to Messrs. Leach & Grant, of Boston.

In order that more space might be had in the boiler room in front of the new boilers to be set, it was decided to make an addition to the building about six feet eight inches deep, and the width of the building.

Contracts, plans, and specifications were drawn for making this extension, for taking down the brick work and removing the old boilers, the city to furnish brick, cement, and sand.

Proposals for furnishing materials required, and for doing the work, were received from the following parties, and for the following sums : —

Messrs. Leach & Grant, Mason and Carpenter work,	\$1,895 00
Lyman A. Ross, Newton Highlands, Mason and Carpenter work,	1,500 00
Burnham & Davis, Newton, Masonry,	700 00
Henry H. Hunt, W. Newton, Carpenter work and Painting,	549 00

The contract was awarded in two sections, to Messrs. Burnham & Davis, and Henry H. Hunt.

Pump and Boiler.

Work on the new pumps and boilers, which were fully described in the City Engineer's report for 1890, has progressed, and while the pumps and engines have been set up and operated, the designers and manufacturers have not perfected them to their complete satisfaction, yet there is every

indication that they will fully equal the contract requirements in efficiency.

One of the boilers made by Edward Kendall & Son of Cambridgeport has been delivered. The second boiler is made and will be delivered as soon as the first boiler can be connected with the Worthington engine, and the old boilers removed out of the building.

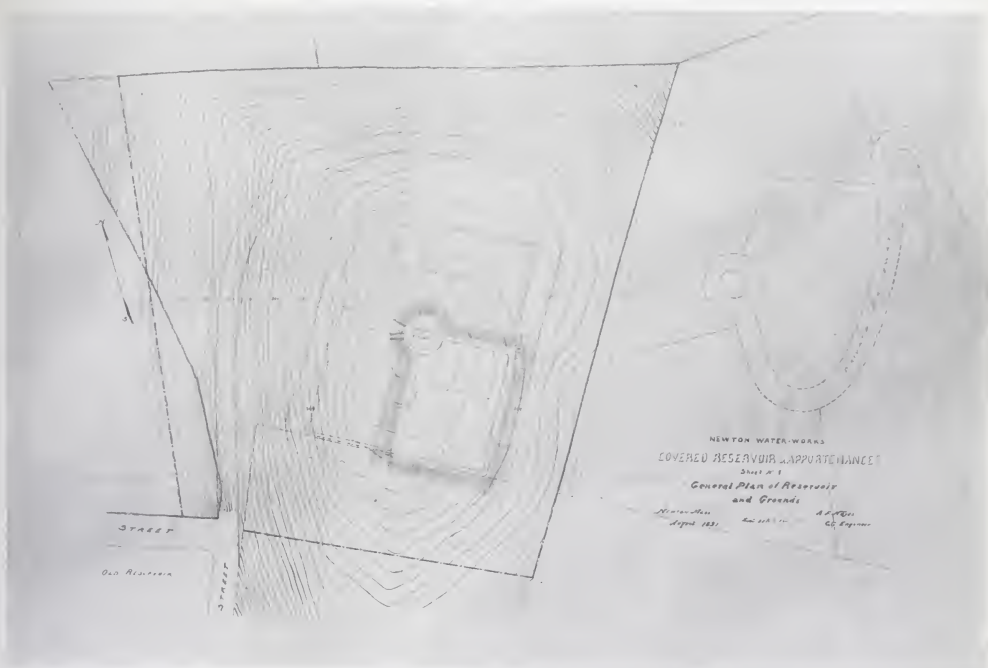
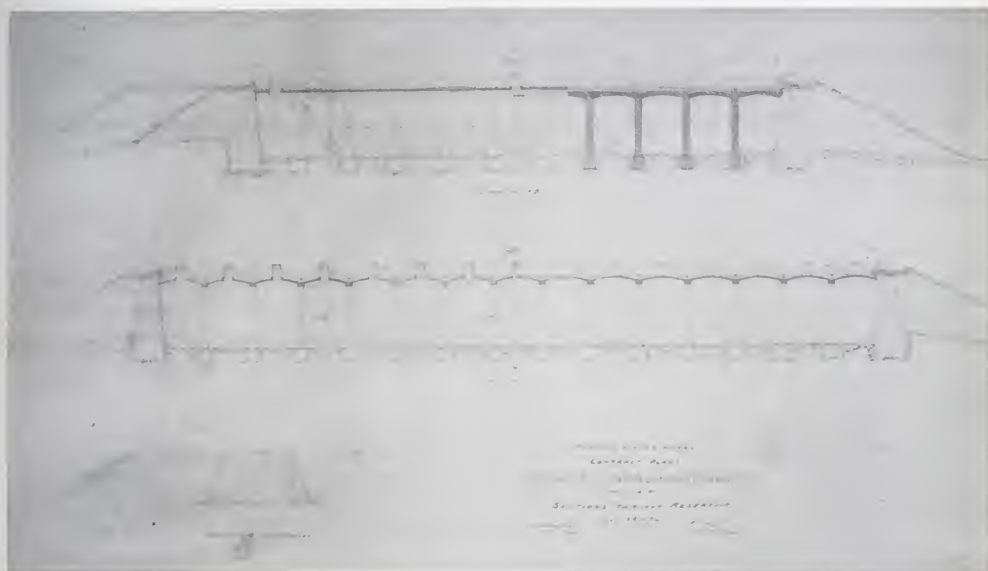
The construction of the engine, pumps, and boilers have been carefully inspected during their construction by Mr. F. W. Dean, Mechanical Engineer of Boston, Mass., and the work carried on under his supervision, and much of the credit for the excellent quality of the machinery is due to his intelligent advice. He designed the piping for connecting the high pressure boilers with the Worthington engine, and proposals for furnishing and erecting the piping and fittings were obtained from the George F. Blake Manufacturing Co. of Boston for \$925, and from Edward Kendall & Son of Cambridgeport for \$690. The contract was awarded to Edward Kendall & Son.

Reservoir.

Work on the new covered masonry reservoir was resumed by the contractor, Mr. William H. Mague, on April 13. The remaining portions of the masonry walls were completed about one half of the covering arches, and covered with four inches of Portland Cement Concrete.

The arches and concrete covering laid during the late fall and early winter, although laid in cold weather, have come out all right apparently without injury from exposure to the winter weather so soon after being laid.

The concrete covering, after being thoroughly set and dried out, was covered with a coating of hot coal tar, well sprinkled with sand, well spread and rubbed into any small cavities there might be in the concrete, and making the covering perfectly water-tight.



BRIDGE AND ROAD SECTION.
 GENERAL PLAN AND SECTIONS OF COVERED RESERVOIR.

The granite coping stone were set on the top of the masonry about the edge of the walls.

The surface of the cement concrete covering was graded with a slight slope towards the east bank, and from the crown to the spandrel of each arch.

Along the spandrel between each arch, tile drains one and one-half inches in diameter were laid to take the water from the top of the reservoir, and connected with larger tile drains extending to the base of the bank.

These tile were covered with four inches of screened pea gravel. In order to further insure the stability of the edge from the action of the frost, a backing of rubble stone masonry about eighteen inches deep was laid dry.

The remaining space inside and to the level of the top of the edgestone was filled with loam.

The Portland Cement plaster was put on by the Italian stone masons, and was specially satisfactory in its results; it was put on in three coats. Beginning at the bottom and working up, the first or rough coat was slashed on with trowels all of the mortar that would hold on to the stone. When it had partially set they set it with their trowels, pressing it into all the rough interstices of the stone work. The second coat was then laid on and smoothed off, and a third and finishing coat, somewhat richer in cement, was applied as soon as the other had partially set. Each coat was trowelled down until the surface was smooth and even.

A flooring of Portland Cement Concrete, having a portion of one part of cement, two parts of sand, and five parts of stone, not over two inches in any diameter, was laid four inches thick, levelled off and well rammed with small plank rammers. This was finished off with a thin finishing coat of Portland Cement mortar, having one part cement and one part sand.

During the work of finishing off the inside of the Reservoir, it was lighted by the use of sheets of bright tin set

above the vent holes from which the sunlight is reflected upon similar sheets of tin under the vent holes and inside of the Reservoir. By their use the light can be thrown upon any part of the interior of the Reservoir.

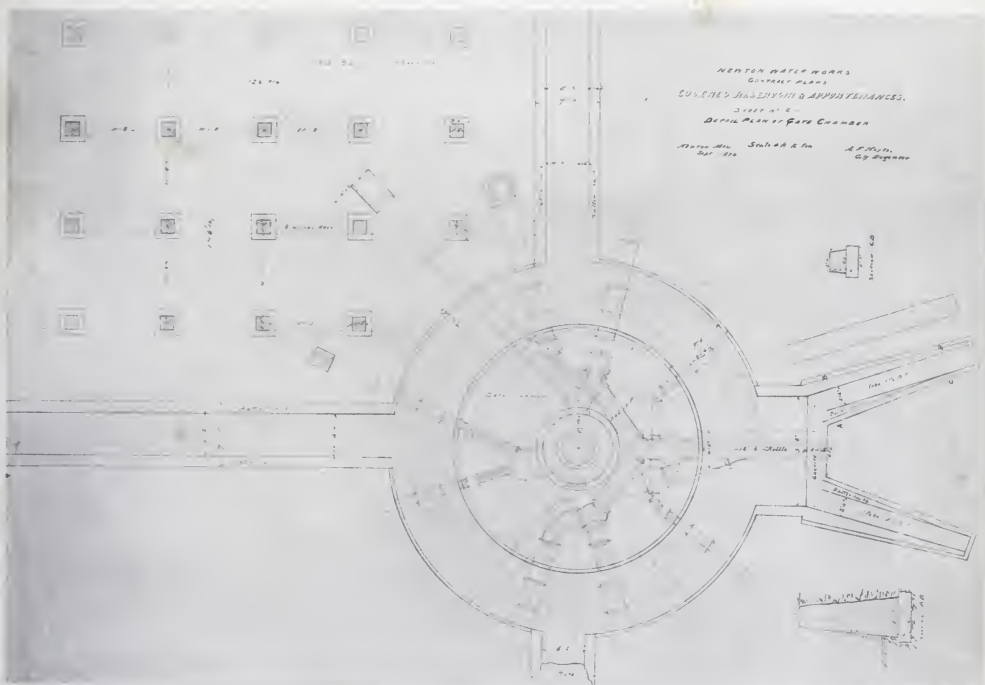
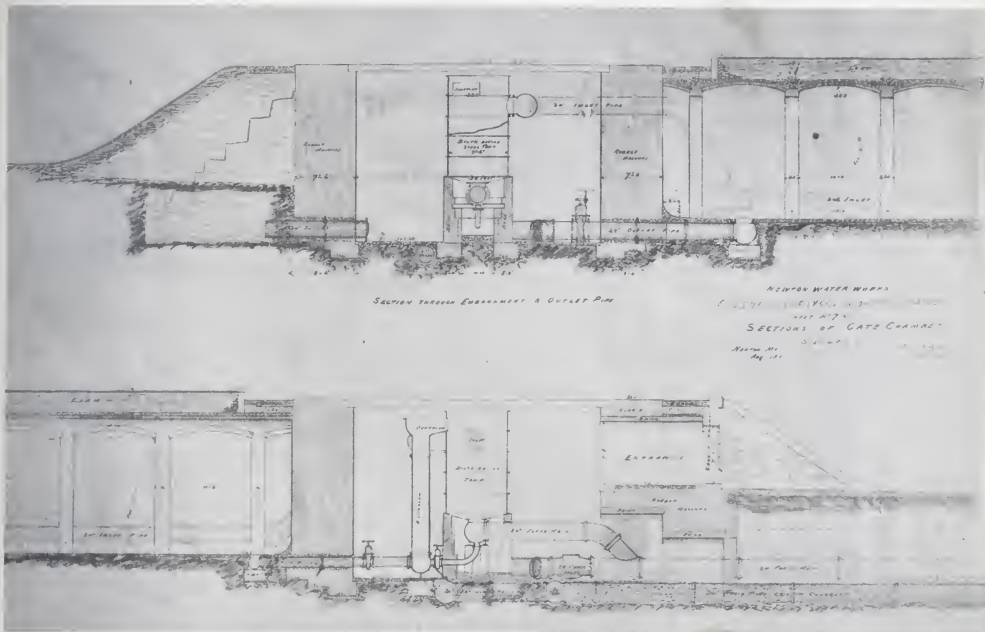
Access to the interior of the Reservoir may be had through an opening left in the top near the western wall. It extends the full width between the arches, ten (10) feet, and is three (3) feet wide. In this opening an iron frame is set, and is provided with a cover in three sections.

Vent manholes were set in an iron frame resting on, and built into the arches, one being set in the centre of each line of arches, and over the centre of the Reservoir.

The manhole frames consist of an iron cylinder two feet in diameter, and projecting about eight inches above the loam, at which height slots were left in the cylinders to provide a free circulation of air, but arranged so as not to allow the direct rays of light to strike the water.

Just outside of the edgestones and on top of the banks, a gravel walk six feet wide was constructed, and two flights of granite steps were set, one on the east bank and one on the west, by the gate chamber.

Before the walls of the gate chamber were brought up to grade, a brick base was built to receive the distributing tank, and the tank was set on this base and brought up to the right grade by means of set screws furnished with it. It was set so that the overflow would be at grade 320, then the brick walls were brought up to a solid bearing all around, enclosing the set screws. The connections were then made with the waste pipe and supply to the Reservoir. The lower piping was connected up some time previous, at the time the waste and force main were laid. These two mains were laid on top of each other, and are carried 24 inches in size back to beyond the foot of the embankment of any future enlargement of the Reservoir some 125 feet.



HELIOTYPE PRINTING CO., BOSTON.

PLAN AND SECTIONS OF GATE CHAMBER.

As there would be no need of access to the waste pipe, and as it was placed below the bottom of the walls of any future extension, the trench was filled in with concrete and well rammed before the force main was placed in it.

The waste was laid so that at the lower end it came out on a grade with the force main, and after being reduced to 20 inches was brought up nearer the surface and carried alongside of the force main to the grade of the old Reservoir; here it was reduced again to 12 inches, with a 20 inch branch delivering by gate into the old Reservoir, so that any overflow from the new Reservoir would be delivered into the old.

In case of clearing the Reservoir the connection with the old could be shut off, and the waste carried down the 12 inch pipe to an outlet in the brook below.

A 6 inch pipe was also carried out from the bottom of the gate chamber to carry off any seepage and waste water from the floor.

The work on the Reservoir was practically completed, and was put in service at 7.45 A.M., Aug. 8, 1891.

On July 24 a contract was made with Mr. George E. Winslow of Waltham, for placing one of his recording gauges at the Reservoir, which would indicate automatically the height of the water in the Reservoir at all times, both at the Pumping Station and Water Registrar's office, City Hall, where the record of the height is kept on a card.

The float for the recording gauge is placed in a stand pipe twelve (12) inches in diameter, placed in the gate chamber, and connected by a two (2) inch pipe with the twelve (12) inch waste pipe from the Reservoir.

This connection was provided with a proper shut-off and waste pipes, so that water could be drawn from the gate chamber if desired, or the stand pipe emptied.

To insure against the water freezing, so as to render the float inoperative, the stand pipe and connections were

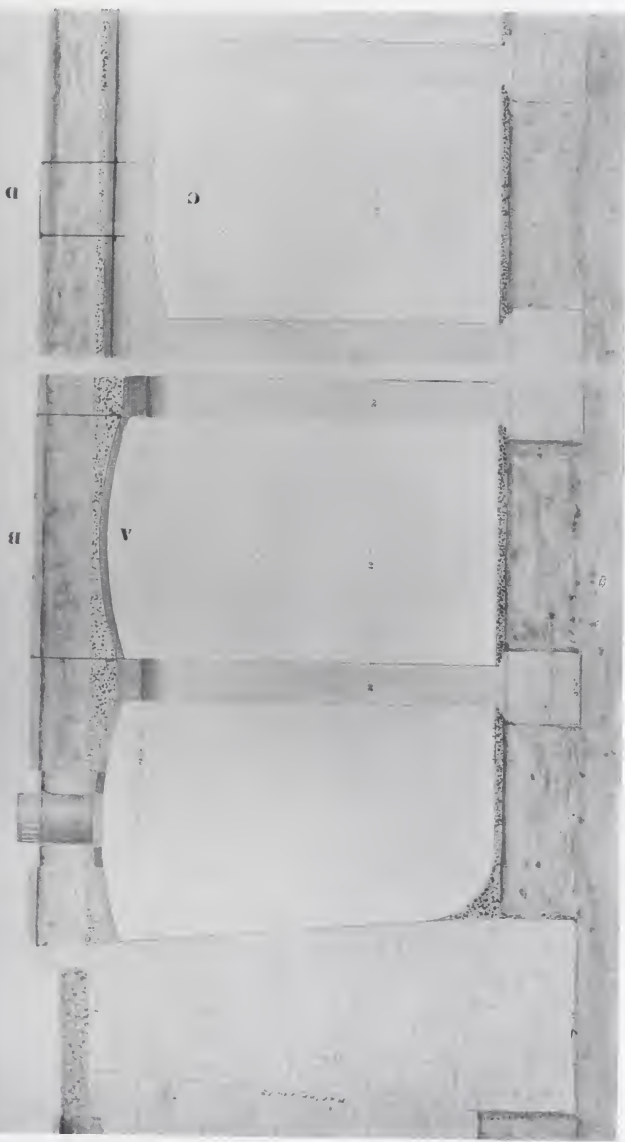
enclosed in a wooden box, and the space between it and the stand pipe filled with sawdust.

A contract was made with the New England Telephone and Telegraph Company to put up and connect the necessary wires to operate the gauges and indicators between the Reservoir, City Hall and the Pumping Station.

A battery of 24 Samson No. 1 cells was placed in the gate chamber, and connections made with the apparatus at the different stations. An electric bell is connected with the indicator, and rings at each rise and fall of one foot. This keeps the engineer constantly apprised of the level of the water in the Reservoir, and the warning often prevents his filling the Reservoir too full, and to maintain the fires under the boilers with greater economy than would be otherwise probable.

The gate chamber was provided with a temporary plank roof, made water-tight with a covering of a double thickness of tarred paper, which was covered with a heavy coating of tar and gravel.

NEWTON RESERVOIR.



SECTIONS THROUGH ARCHES.

on A B

HELIOTYPE PRINTING CO., BOSTON.

on C D

PUBLIC PROPERTY.

Proposals were received by the Joint Standing Committee on Public Property for heating and ventilating the Underwood school, and a number of plans were submitted, but none adopted as submitted. The plan of D. P. Gosline was accepted after some changes had been made by State Inspector Coon, the City Engineer, and the Committee.

At the City Hall the assessors', clerk's, treasurer's and engineer's departments had been suffering for lack of fire-proof storage room for a long time. It was necessary to store many valuable papers and plans in cases in the offices. During the year this difficulty has been largely remedied. The floor under the assessor's office was stiffened by large I beams, resting on piers built up from the cellar, and a large steel safe has been purchased and placed in this room. The wall between the clerk's and the treasurer's vaults was removed, thereby giving the treasurer double the former space. Then the wing on the east side of the building which contained the staircase leading to the side entrance of the City Hall, was turned into a vault stack. This created a storage safe in the cellar, a large safe in the basement story that was connected with the present engineer's safe, and a safe in the first floor that was assigned to the clerk. These vaults are all large and provide ample room for the present. The vault in the engineer's department has not been furnished as yet, but will be next year. By partitioning off a portion of the basement story a large coat and tool room was provided for the engineer's department. Owing to the large number of men employed by the engineer's department the accommodations are very much cramped, and some of the men are obliged to work in the large hall, which is poorly lighted and can only be heated for so small a number of people with great difficulty.

BOARD OF HEALTH.

The work of draining the large territory west of Waltham and Cherry streets, and north of River street, has been nearly completed. But a small amount remains to be done next year. The following table will show the work done this year:—

Cost includes widening and deepening about 3,875 feet of open ditches or brooks, and grading to an inclining slope the adjacent low grounds.

Drains above 21 inches in diameter are brick. Drains less than 21 inches in diameter are Akron or cement drain pipe.

West Newton Board of Health Drain Constructed in 1891.

STREET.	Size in inches.	Length in feet.	Average cul.	Manholes.	Catch Basins.	Feet of Inlets.	Size of Inlets.	Length of Sub-Drain.	Size of Sub-Drain.	Cost.	LOCATION.
Waltham, . . .	48 x 52	467	7.1	2	1	66	10	467	10	\$15,224.58	Cheese Cake Brook to River St.
River, . . .	48 x 52	45	9.6					45	10		Waltham St. to Henshaw St.
	42 x 44½	559	9.4	1	7	157	10	559	10		
	42 x 44½	597	10.1	2	4	{ 48	12	170	10		River St. to beyond Angle.
Henshaw, . . .	36 x 38½	126	9.0	1		63	8	427	8		} Angle easterly.
	18	87	7.3	1				{ 18	8		
Cherry, East and West,	36 x 38½	551	8.4	2	1	25	12	551	8		Henshaw St. to beyond Cherry.
Webster, . . .	18	273	4.5		3	63	8				Waltham St. west.
Total, . . .		2,705		9	16	422		2,345		\$15,245.58	

SEWER DEPARTMENT.

Chief Engineer and Superintendent.

Albert F. Noyes.

Division Engineers.

Fred H. Barnes, Division 3 Sewer Construction to Nov. 1, 1891.

Heywood S. French, { Divisions 1 and 2 Sewer Construction
to Nov. 1, 1891.
Division 3 Sewer Construction from
Nov. 1, 1891.

David Hinckley, { Division 1 and 2 Sewer Construction
from Nov. 1, 1891.

Stephen Child, Sewer Extensions made by the city, and
House Connections.

Assistant Engineers in Charge of Field Work.

David Hinckley, Walter Newell, Thomas F. Bowes.

Transitmen and Levellers.

Dana Libbey, A. T. Safford, Ernest Harvey.

Rodmen.

W. E. Leonard, John J. Burns, F. H. Hollingsworth.

Assistant Engineers Assigned to Sewer Inspection.

Brick Sewers.

F. B. French, F. J. Browning, E. R. Conant,
Bert Morgrave, J. W. Beardsley.

Pipe Sewers.

Howard Carleton,	J. H. Burleigh,	Rufus Porter,
J. G. Barri,	W. W. Peabody,	R. J. Arey,
L. H. Bateman,	C. E. Davis,	A. S. Crane,
C. N. Taylor,	W. M. Bailey,	C. H. Bunker,
H. H. Applin,	R. Le Francis,	A. F. Lyman.
F. A. Barrows,	F. F. Barrows,	

Draughtsmen.

Herbert F. Pierce,	Fred C. Moore.
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Cement Inspector and Stock-keeper.

Alfred O. Doane.

Pipe Inspector and Book-keeper.

John A. Scott.

Sewers.

As soon as possible after their appointment, the committee proceeded to consider the work in detail. It was decided to cover those districts where the need was most imperative, or where it was necessary to construct trunk sewers to reach such districts. The work was divided into three sections; sections 1 and 2 being the Hyde Brook district, and section 3 being principally the trunk lines for Laundry Brook district.

The land owned by the City on Crafts street was used as a stock yard. It was necessary to have a large storage shed for cement. Plans for such a building were prepared, and the following bids received for its construction:—

J. H. Roblee,	\$986 00.
G. Bailey,	867 00.
S. Holmes,	700 00.
F. W. Stevens,	677 00.
H. H. Hunt,	523 00.

The contract was awarded to H. H. Hunt. The building was 100 x 25, covered with sheathing paper. The front portion was used as headquarters for the division engineer. Also for testing cement and storing tools.

The city made separate contracts for material and labor for the sewers. Bids were received for materials as follows:

For Akron Sewer Pipe, bids were received from the Portland Stone Ware Co., A. J. Fiske & Co., David W. Lewis, Henry A. Warner, W. G. Nash, G. M. Fiske and C. F. Eddy, Ham & Carter, and Waldo Bros., all bidding a discount of 55 per cent. and 2 per cent. from the eastern standard price list. The bids for pipe were rejected, and contracts made with Evans & Howard of St. Louis, and the Potomac Terra Cotta Co. of Washington, at the following prices:—

The price of the Potomac Terra Cotta Co. being 65 per cent. discount from the standard price list, and the price of Evans and Howard being

4 inch pipe, 7 1-2 cents.	15 inch pipe, 44 cents.
6 " 11 1-2 "	18 " 64 "
8 " 17 "	20 " 88 "
10 " 25 "	4 inch caps, 3 "
12 " 30 "	6 " 5 "

with a discount of 3 per cent on the above prices, after deducting freight charges.

For one million and a half sewer brick the bids were Lindley, Wright & Co., East Brookfield, 1-3 arch, 2-3

body brick,	\$8 40
Lindley, Wright & Co., all body brick,	8 90
Barry Bros. & Glidden, Boston,	9 95
M. W. Sands, No. Cambridge,	10 50

The bids for brick were rejected and the contract finally awarded to M. W. Sands, at \$10.00 per thousand for a hand-made, body brick of large size to be used on the sewer, and \$9.50 per thousand for a sand-struck, body brick containing a small percentage of solid bench brick. These were to be used in the manholes.

For cast iron manhole frames and covers weighing 410 pounds, the bids were:—

William H. Carberry, Boston,	\$9 22
Edward Grenelle, New Bedford,	8 48
I. S. Cassin & Co., Phil. Penn.,	8 70
Waltham Foundry Co., Waltham,	8 50
Union Iron Works, Lynn, Mass.,	7 87 1-2
Bradley, Hastings & Co.,	7 77
Mechanics Iron Foundry, Boston,	7 25
Osgood & Hart, Charlestown,	6 95 per set.

This contract was awarded to Osgood & Hart.

For American Hydraulic Cement the bids were as follows:—

Smith & Green, Worcester, N. Y. Cement Co.,	\$1 08 per bbl.
Waldo Bros., Boston,	Hoffman, 1 14 1-2
E. C. Huxley,	Obelisk, Akron, O., 1 12
W. G. Nash, Boston,	Hudson R. C. Co., 1 20
W. G. Nash, Boston,	N. Y. & Rosn'd Co. 1 25
Howard Fleming, N. Y.,	1 29

The contract for furnishing American Cement was awarded to Smith & Green, and was especially ground in lots of 1,000 barrels at a time.

For Portland Cement the bids were as follows:—

W. G. Nash, Boston,	{ Albion Brand,	\$2 45
	{ Booth Brand,	2 50
	{ Port London Wedge Brand,	2 49
Waldo Bros.,	{ Cleopatra,	2 53
	{ Brooks, Shoobridge,	2 63
Howard Fleming, Port Gibbs, or H. B. S.,		2 64

The contract for furnishing Portland Cement, Wedge Brand, was awarded to Waldo Bros.

The following bids for labor were received, and all three sections were awarded to James Killian:—

Canvas of Bids for Building Section One; Newton Sewerage System; opened April 23, 1891.

ITEMS.	Quantities.	James Killian, Brighton.	Michael Sullivan, Little Falls.	Collins & Ham, Boston.	Kelley & O'Hearn, Brookline.	R. D. Shanahan, Portland, Me.
a Earth Exc. 0 to 8 ft.,	19,500 c. y.	\$ 43	\$ 59	\$ 47	\$ 75	\$ 1 00
b " " 8 " 14 "	4,570 "	\$ 8,385	\$ 11,505	\$ 1,165	\$ 14,625	\$ 19,500
c " " 14 " 20 "	310 "	2,719 15	2,970 50	1 11	5,072 70	1 25
d " " 20 " 26 "	150 "	70	1 50	1 60	1 50	1 25
e Gravel Refilling, .	100 "	1 00	1 75	2 25	2 00	2 00
f Rock Exc. 0 to 8 ft.	1,060 "	1 00	1 00	1 00	1 00	2 00
g " " 8 " 14 "	670 "	3 90	3 80	4 95	3 50	4 00
h " " 14 " 20 "	150 "	5 50	2,685 00	7 00	3,484 00	4,690 00
i " " 20 " 26 "	25 "	7 00	1,050 00	9 00	1,350 00	1,800 00
j Brick Masonry, . .	260 "	8 00	200 00	13 00	375 00	400 00
k Concrete Masonry, .	500 "	4 90	1,274 00	8 25	2,145 00	7 00
l Rubble Stone Masonry	25 "	3 50	1,750 00	4 00	2,000 00	2,500 00
m Pipe Sewer, . . .	22,100 l. f.	3 90	75 00	4 00	100 00	6 00
n Pipe Chimneys, . .	1,000 v. f.	06	1,326 00	09	1,989 00	12
o Chimney Sub-Drain, .	21,500 l. f.	05	50 00	06	60 00	12
p Spruce Lumber, . .	10 m. f. b. m.	15	3,225 00	30	6,450 00	25
q Sheet piling in place, .	2 m. f. B. M.	28 00	300 00	29 00	300 00	300 00
r Spruce Piles, . . .	1,000 l. f.	13 00	26 00	13 00	26 00	26 00
s Block Paving, . . .	240 s. y.	31	300 00	33	330 00	300 00
		2 00	480 00	2 93	703 20	1 00
Total,		\$29,458 65	\$30,679 00	\$40,876 40	\$43,286 20	\$50,713 00

Canvas of Bids for Building Section Two; Newton Sewerage System, opened April 23, 1891.

ITEMS.	Quantities.	James Killian, Brighton.	Michael Sullivan, Little Falls, N. Y.	Richard Falvey, Somerville.	Collins & Ham, Boston.	Kelley & O'Hearn, Brookline.	Dennis O'Connell, Dorchester.	R. D. Shanahan, Portland, Me.
a Earth Exc. 0 to 8 ft	25,400 c.y.	\$ 42½\$10,795 00	\$ 59 \$14,986 00	\$ 53 \$13,462 00	\$ 42 \$10,688 00	\$ 74 \$18,796 00	\$ 72 \$18,288 00	\$1 00 \$25,400 00
b " " 8 " 14 "	6,700 "	60 4,020 00	65 4,355 00	75 5,025 00	80 5,360 00	90 6,030 00	98 6,960 00	1 00 6,700 00
c " " 14 " 20 "	60 "	70 42 00	1 50 90 00	1 00 60 00	1 11 66 60	2 50 150 00	1 60 96 00	1 50 90 00
d " " 20 " 26 "	30 "	70 21 00	1 75 52 50	1 10 33 00	2 31 63 30	3 00 90 00	2 00 60 00	2 00 60 00
e Gravel Refilling,	100 "	1 10 110 00	1 00 100 00	60 60 00	1 00 100 00	50 50 00	75 75 00	2 00 200 00
f Rock Exc. 0 to 8 ft	3,130 "	3 80 11,894 00	3 00 9,390 00	3 00 9,390 00	4 10 12,833 00	3 50 10,955 00	4 50 14,085 00	4 00 12,520 00
g " " 8 " 14 "	770 "	5 50 4,235 00	4 00 3,080 00	3 75 2,887 50	5 50 4,235 00	5 10 3,927 00	5 25 4,042 50	7 00 5,390 00
h " " 14 " 20 "	100 "	6 00 600 00	6 00 600 00	3 00 300 00	8 00 800 00	10 00 1,000 00	6 00 600 00	12 00 1,200 00
i " " 20 " 26 "	50 "	8 00 400 00	8 00 400 00	3 00 150 00	11 00 550 00	10 00 500 00	8 00 400 00	16 00 800 00
j Brick Masonry,	360 "	4 75 1,710 00	4 00 1,440 00	4 40 1,584 00	7 85 2,826 00	8 00 2,880 00	6 50 2,340 00	7 00 2,520 00
k Concrete Masonry,	500 "	3 50 1,750 00	2 00 1,000 00	2 00 1,000 00	4 10 2,050 00	4 00 2,000 00	3 75 1,875 00	5 00 2,500 00
l Rubble Stone M'ry	25 "	4 00 100 00	3 00 75 00	3 00 75 00	4 00 100 00	5 00 125 00	14 00 330 00	6 00 150 00
m Pipe Sewers, . .	32,400 l. f.	66 1,944 00	65 1,620 00	68 2,592 00	7 08 2,592 00	8 00 2,880 00	12 3,888 00	12 3,888 00
n Pipe Chimney, . .	1,000 v. f.	40 40 00	63 30 00	68 80 00	66 60 00	10 100 00	10 100 00	12 120 00
o Pipe Sub-Drain, .	24,500 l. f.	15 3,675 00	20 4,900 00	25 6,125 00	18 4,410 00	25 6,125 00	30 7,350 00	25 6,125 00
p Spruce Lumber, .	10 M. f. B. M.	28 00 280 00	30 00 300 00	25 00 250 00	27 00 270 00	39 00 300 00	30 00 300 00	30 00 300 00
q Sheeting 1" t in pl'c.	2 M. f. R. M.	13 00 26 00	13 00 26 00	13 00 26 00	13 00 26 00	13 00 26 00	13 00 26 00	13 00 26 00
r Spruce Piles, . .	1,000 l. f.	30 300 00	30 300 00	20 200 00	28 280 00	25 250 00	30 300 00	30 300 00
s Block Paving, . .	230 s. y.	2 00 460 00	1 00 230 00	2 80 644 00	2 49 572 00	4 00 920 00	3 50 805 00	1 00 230 00
Totals,		\$42,402 00	\$42,974 50	\$43,943 50	\$47,808 00	\$56,516 00	\$61,546 50	\$68,519 00

Canvas of Bids; Opened April 23, for Building Section Three of Newton Sewerage System.

ITEMS.	Quantities.	James Killian, Brighton.	Michael Sullivan, Little Falls, N. Y.	Collins & Ham, Boston.	Kelley & O'Hearn, Brookline.
a Earth Exc. 0 to 8 ft. .	36,620 c. y.	\$ 48 \$17,577 60	\$ 65 \$23,803 00	\$ 44 \$16,112 80	\$ 70 \$25,634 00
b " " 8 " 14 " .	12,480 "	68 8,486 40	80 9,984 00	91 11,356 80	1 13 14,102 40
c " " 14 " 20 " .	2,080 "	85 1,768 00	1 00 2,080 00	1 42 2,953 60	2 00 4,160 00
d " " 20 " 26 " .	159 "	1 00 150 00	1 75 262 50	2 15 322 50	2 00 300 00
e Gravel Refilling, . .	1,000 "	1 10 1,100 00	1 50 1,500 00	90 900 00	50 500 00
f Rock Exc. 0 to 8 ft. .	1,300 "	4 00 5,200 00	3 00 3,900 00	4 45 5,785 00	3 50 4,550 00
g " " 8 " 14 " .	600 "	6 00 3,600 00	4 00 2,400 00	5 98 3,588 00	4 60 2,760 00
h " " 14 " 20 " .	40 "	7 00 280 00	6 00 240 00	9 00 360 00	10 00 400 00
i " " 20 " 26 " .	25 "	7 00 175 00	8 00 200 00	12 00 300 00	10 00 250 00
j Brick Masonry, . . .	1,420 "	4 85 6,887 00	5 00 7,100 00	6 96 9,883 20	8 00 11,360 00
k Concrete Masonry, . .	530 "	3 80 1,900 00	3 00 1,500 00	4 75 2,375 00	4 00 2,000 00
l Rubble Stone Masonry, .	25 "	4 00 100 00	3 00 75 00	3 50 87 50	5 00 125 00
m Pipe Sewers,	30,000 l. ft.	06 1,800 00	05 1,500 00	06 1,800 00	10 3,000 00
n Pipe Chimneys, . . .	1,000 "	05 50 00	03 30 00	05 50 00	10 100 00
o Pipe Sub-Drain, . . .	31,700 "	15 4,755 00	20 6,340 00	24 7,608 00	25 7,925 00
p Spruce Lumber, . . .	30,000 ft.B.M.	27 00 810 00	30 00 900 00	27 50 825 00	30 00 900 00
q Sheet piling in place, .	2,000 "	13 00 26 00	13 00 26 00	13 00 26 00	13 00 26 00
r Spruce Piles,	10,000 l. ft.	27 2,700 00	30 3,000 00	30 3,000 00	25 2,500 00
s Block Paving,	430 sq. y.	2 00 860 00	1 00 430 00	2 69 1,156 70	4 00 1,730 00
Totals,		\$58,425 00	\$65,270 50	\$68,490 10	\$82,312 40

About November 1st Mr. Killian abandoned his contract, and the City is completing it at his expense.

Owing to the incomplete state of the work it is difficult to give the cost of the work by streets, but the following table will show the work done upon each street to Jan. 1, 1892. The total expenditure as per the auditor's report is \$204,866.77.

Sewers Laid in 1891.

STREET.	FROM,	TO.	Length of Sewer.	Length of Sub-Drain.	Size of Sewer.	Size of Sub-Drain.	Manholes.	Average Depth.
Arlington St.,	Waverley Ave.,	Pembroke St.,	692.46	692.46	3 in.	4 in.	2	8.36
Austin St.,	Walnut St.,		645.00	645.00	8 "	3 "	2	9.76
Avon place,	Thornton St.,		251.35	251.35	8 "	4 "	2	10.19
Bacon St.,	Washington St.,		409.33				1	10.39
Baldwin St.,	Elmwood St.,	Pearl St.,	386.50	386.50	8 "	4 "	2	7.84
Belmont St.,	Tremont St.,	Vernon St.,	526.00	526.00	8 "	4 "	1	8.80
Bennington St.,	Centre St.,	Arlington St.,	34.03	34.03	10 "	6 "	1	10.20
"	Angle,	Angle,	936.72	936.72	6 "	4 "	1	10.66
"	Church St.,	End,	225.00		8 "		1	5.10
Billings Park,	Emerson St.,	Jewett St.,	590.00	590.00	8 "	4 "	3	8.56
Boyd St.,	Private land,	Elmwood St.,	315.92	315.92	21 "	12 "	1	12.30
Brooks St.,	Harvard St.,	Gay St.,	555.82	555.82	12 "	10 "	2	9.62
Cabot St.,	Gay St.,	Walnut St.,	952.03	952.03	12 "	8 "	2	10.92
"	Centre St.,	Private land,	602.00	602.00	10 "	8 "	3	13.28
Carleton St.,	Private land,	Pearl St.,	270.92	270.92	8 "	4 "	2	11.52
"	Private land,	Crafts St.,	794.02	794.02	8 "	4 "	3	8.69
Central Ave.,	Private land,	Washington St.,	865.33	865.33	8 "	4 "	4	8.24
"	Centre Ave.,		173.00	215.00	8 "	4 "		6.23
Central Place,	Centre St.,		291.00	291.00	8 "	6 "	1	9.03
Centre St.,	Elmwood St.,	Church St.,	870.45	870.45	18 "	10 "	6	15.16
"	Church St.,	Mt. Ida. St.,	446.18	446.18	12 "	8 "	3	12.71
"	Mt. Ida. St.,	Hollis St.,	241.37	241.37	12 "	6 "	1	9.51
"	Hollis St.,	Franklin St.,	77.10	77.10	12 "	8 "	1	11.01
"	Franklin St.,	Bennington St.,	495.98	495.98	10 "	6 "	3	11.41

"	"	Bennington St.,	Bellevue St.,	470.22	470.22	10	"	6	"	4	11.52
"	"	Bellevue St.,	Fairmount Ave.,	248.20	248.20	8	"	6	"	1	10.54
"	"	Washington St.,	Carleton St.,	596.09	596.09	10	"	8	"	4	18.90
"	"	Washington St.,	B. & A. R. R.,	326.41	326.41	8	"	4	"	1	12.94
Channing St.,	"	Washington St.,	Pearl St.,	573.62	573.62	8	"	4	"	1	7.72
Chesley Place,	"	Central Ave.,		204.00	204.00	8	"	4	"		9.07
Church St.,	"	Centre St.,	Oakland St.,	835.95	835.95	10	"	8	"	3	13.36
"	"	Oakland St.,	B. & A. R. R.,	514.05	514.05	8	"	4	"	3	8.29
"	"	Centre St.,	Eldredge St.,	775.09	775.09	10	"	8	"	3	12.02
"	"	Eldredge St.,	Park St.,	916.91	916.91	8	"	4	"	4	10.44
"	"	Park St.,	Waverley Ave.,	524.07	524.07	6	"	4	"	3	10.30
Cook St.,	"	Watertown St.,	Green St.,	546.00	546.00	24x36	"	12	"	3	18.09
Court St.,	"	Private land,	Washington St.,	244.51	244.51	24x36	"	10	"	1	13.47
Court St.,	"	Private land,	Washington St.,			12	"	10	"	2	13.48
Crafts St.,	"	Private land,	Private land,	537.93	537.93	24x36	"	10	"	2	14.41
Crescent Square,	"	Private land,	Private land,	230.30	230.30	8	"	4	"	2	10.33
Crescent St.,	"	Thornton St.,	Waban St.,	289.75	289.75	24x36	"	12	"	1	16.48
Durant St.,	"	California St.,	Faxon St.,	439.85	439.85	8	"	4	"	1	9.96
Eldredge St.,	"	Waverley Ave.,	Pembroke St.,	250.00	250.00	8	"	4	"	4	10.44
"	"	Church St.,	Franklin St.,	573.90	573.90	8	"	4	"	2	11.66
"	"	Elmwood St.,	Vernon St.,	419.87	419.87	12	"	12	"	2	11.66
Elmwood St.,	"	Vernon St.,	Church St.,	619.27	619.27	8	"	4	"	1	11.80
"	"	Brooks St.,	Centre St.,	494.80	494.80	18	"	10	"	3	14.30
"	"	Brooks St.,	Eldredge St.,	219.50	219.50	12	"	12	"	2	11.77
Emerson St.,	"	Eldredge St.,	Park St.,	117.35	117.35	8	"	4	"	1	10.10
"	"	Private land,	Pearl St.,	320.31	320.31	8	"	6	"	1	11.19
"	"	Private land,	Boyd St.,	231.24	231.24	8	"	4	"	1	10.01
Fairmount Ave.,	"	Centre St.,		886.00	886.00	8	"	4	"	3	9.49
Fairview St.,	"	Private land,	Hunnewell Ave.,	534.52	534.52	8	"	8	"	3	10.54
Faxon St.,	"	Crescent St.,	Watertown St.,	217.35	217.35	24x36	"	12x8	"	1	16.46
Franklin St.,	"	Centre St.,	Eldredge St.,	243.57	243.57	8	"	6	"	1	12.21
"	"	Eldredge St.,	Park St.,	982.60	982.60	8	"	4	"	4	9.90
Gardner St.,	"	School St.,	Jewett St.,	457.00	457.00	8	"	4	"	3	9.12

(Continued on page 72.)

Sewers Laid in 1891 (continued from page 71).

STREET.	FROM	TO	Length of Sewer.	Length of Sub-Drain.	Size of Sewer.	Size of Sub-Drain.	Manholes.	Average Depth.
Gardner St., . . .	Jewett St.,	Washington St.,	112.00	112.00	8 in.	4 in.		9.94
Grassmere St., . .	Hunnewell Ave.,	Washington St.,	617.60	617.60	6 "	4 "	1	9.54
Harvard St., . . .	Spruce St.,	Norwood Ave.,	148.05	148.05	21 "	10 "		8.76
" " " " " "	Norwood Ave.,	Calbot St.,	646.13	646.13	12 "	10 "	3	9.80
Highland Ave., . .	Walnut St.,		943.00	943.00	8 "	4 "	3	9.30
Hollis St., . . .	Centre St.,	Centre St.,	663.65	663.65	8 "	8 "	4	9.33
Hovey St., . . .	Waban St.,	Washington St.,	490.07	350.00	8 "	4 "	2	8.09
Hunnewell Ave., . .	Fairview St.,	Grassmere St.,	650.20	650.20	8 "	8 "	3	12.88
Jefferson St., . .	Centre St.,	Maple St.,	983.33	983.33	8 "	4 "	7	9.98
Jewett St., . . .	Waban St.,	Pearl St.,	416.13	416.13	8 "	4 "	2	7.75
" " " " " "	Washington St.,	Waban St.,	730.53	730.53	8 "	4 "	2	8.35
Kenrick Park, . .	Church St.,	Franklin St.,	452.81	452.81	8 "	6 "	4	9.35
Lincoln Court, . .	Adams St.,	Shamrock St.,	119.00	150.00	24x36 "	12 "	4	19.72
Linder Terrace, . .	Hunnewell Ave.,		204.00	204.00	8 "	4 "	2	8.28
Maple Ave., . . .	Church St.,		445.00	445.00	8 "	4 "	2	8.13
Maple St., . . .	Jefferson St.,		141.51	141.51	8 "	4 "	2	8.74
Middle St., . . .	Chapel St.,		561.04	561.04	24x36 "	12 "	2	20.97
Mt. Ida St., . . .	Centre St.,	Newtonville Ave.,	363.70	363.70	8 "	4 "	2	8.85
Newtonville Ave., .	Mt. Ida St.,	Centre St.,	300.00	300.00	8 "	4 "	1	8.30
" " " " " "	Oakland St.,	Westerly,	1000.00	1000.00	8 "	4 "	2	10.04
Nonantum Place, . .	Private land,	Nonantum St.,	416.86	416.86	21 "	12 "	1	11.00
Nonantum St., . .	Nonantum Place,	Washington St.,	130.97	130.97	21 "	12 "	1	14.67
" " " " " "	Nonantum Place,	Orchard St.,	433.35	433.35	6 "	4 "	4	9.80
" " " " " "	Private land,	Orchard St.,	384.90		8 "		3	9.91

Nonantum St.	Private land,	St. James St.,	294.80		8	8	1	10.74
"	Private land,	Private land B. & A.	227.85	227.85	8	8	1	8.46
Oakland St.	Church St.,	Newtonville Ave.,	663.71	663.71	8	4	6	9.20
Orchard St.	Nonantum St.,	St. James St.,	403.77	403.77	6	4	3	9.47
Otis St.	Walnut St.,		640.45	640.45	8	4	2	8.63
Park St.	Franklin St.,	Sargent St.,	1143.74	1143.74	8	4	6	10.18
"	Washington St.,	Tremont St.,	708.77	708.77	8	4	2	9.78
"	Vernon St.,	Tremont St.,	165.00	165.00	12	8	2	12.25
"	Vernon St.,	Church St.,	1180.96	1180.96	8	6	5	10.17
Peabody St.	Washington St.,	Pearl St.,	475.16		8	8	1	8.30
Pearl St.	Watertown St.,	Green St.,	739.30	739.30	8	6	4	13.29
"	Green St.,	Jewett St.,	1224.30	1208.00	8	4	4	7.84
"	Centre St.,	Bacon St.,	447.24	447.24	8	4	2	10.00
"	Bacon St.,	Peabody St.,	188.90		8	8	1	8.49
"	Peabody St.,	Carleton St.,	120.67	120.67	8	4		9.16
"	Carleton St.,	Channing St.,	94.67	94.67	8	4	1	7.70
"	Channing St.,	Emerson St.,	120.85	120.85	8	4		8.77
"	Emerson St.,	Jewett St.,	682.69	682.69	8	4	3	9.03
Pembroke St.	Tremont St.,	Durant St.,	880.00	880.00	8	4	3	9.17
Private land,	Met. Sewer,	Nonantum Place,	624.85	624.85	21	12	3	6.67
"	Washington St.,	Brook St.,	147.97	147.97	21	12	2	16.10
"	Carleton St.,	Angle,	236.53	236.53	10	8	1	12.80
"	Angle,	Emerson St.,	21.98	21.98	10	6	1	11.00
"	Crafts St.,	Court St.,	514.82	514.82	24x36	10	3	12.55
"	Met. Sewer,	Central Ave.,	1200.57	1200.57	10	10	4	9.05
"	Hyde Brook,	Nonantum St.,	293.00	292.00	8	8	1	16.45
"	Nonantum St.,	Nonantum St.,	403.50	403.50	8	8	3	7.10
"	Nonantum St.,	Fairview St.,	221.47	221.47	8	8	2	12.05
Richardson St.	Centre St.,	Church St.,	1228.01		8	4	5	8.12
Sargent St.	Park St.,	Waverly Ave.,	690.18	690.18	8	4	3	9.01
School St.	Pearl St.,		336.20	336.20	8	4	3	9.47
Summit St.	Newtonville Ave.,		208.00	208.00	8	4	1	7.64

(Continued on page 74.)

Sewers Laid in 1891 (Concluded from page 73).

STREET.	FROM.	TO.	Length of Sewer.	Length of Sub-Drain.	Size of Sewer.	Size of Sub-Drain.	Manholes.	Average Depth.
Thornton Place,	Thornton St.,	Pearl St.,	164.70	164.70	8 in.	4 in	1	9.37
Thornton St.,	Washington St.,	Waverley Ave.,	739.28	739.28	8 "	4 "	5	10.95
Tremont St.,	Park St.,		966.17	966.17	10 "	8 "	5	11.15
Turner St.,	Waverley Ave.,		109.00	116.00	10 "	6 "		12.00
Turner St.,	Central Ave.,	Walnut St.,	556.06	556.06	8 "	8 "	4	7.80
Vernon St.,	Centre St.,	Baldwin St.,	373.70	373.70	8 "	4 "	2	9.32
"	Eldredge St.,	Park St.,	351.30	351.30	12 "	10 "		12.47
"	Park St.,	Waverley Ave.,	779.01	779.01	8 "	8 "	4	10.55
Waban St. and Pk.	Pearl St.,	Jewett St.,	1175.50	1175.50	8 "	4 "	5	9.75
Waban St.,	Thornton St.,	Jewett St.,	658.80	658.80	8 "	4 "	3	10.65
Waban Park,	Waban St.,		300.00	300.00	8 "	4 "	1	11.10
Walnut Pk N. Side	Washington St.,		895.75	895.75	8 "	4 "	4	8.89
Walnut Pk, S. Side	Walnut Pk, N. Side		440.94	440.94	8 "	4 "	2	9.74
Walnut St.,	Turner St.,	Lowell St.,	368.78	368.78	8 "	4 "	3	8.44
"	Turner St.,	Washington St.,	1008.25	1008.25	8 "	4 "	4	9.84
"	Washington St.,	B. & A. R. R.	115.75	115.75	8 "	4 "	1	8.98
"	Newtonville Ave.,	Bowers St.,	124.47	124.47	8 "	4 "	1	10.71
"	Spruce St.,	Newtonville Ave.,	320.19	320.19	12 "	6 "	3	11.82
"	Spruce St.,	Mill St.,	2544.92	2544.92	24x36	6 "	16	11.60
Washington Pk, N.	Harvard St.,	Walnut St.,	1519.45	1519.45	8 "	4 "	5	11.42
Washington Pk, S.	Harvard St.,		908.33	908.33	8 "	4 "	3	10.89
Washington St.,	Private land,	Hunnevell Ave.,	799.80	799.80	8 "	4 "	5	8.53
"	Waverley Ave.,	Westerly,	403.55	403.55	8 "	4 "	2	10.57

"	"	"	Grassmere St.,	747.52	747.52	8	"	4	"	2	9.21
"	"	"	Centre St.,	335.89	335.89	12	"	8	"	2	18.70
"	"	"	Hovey St.,	1567.41	88.59	8	"	4	"	6	11.52
"	"	"	Easterly,	408.75	408.75	8	"	4	"	2	9.39
"	"	"	Lowell St.,	1288.15	1288.15	8	"	4	"	4	9.68
"	"	"	Harvard St.,	98.00	133.00	24x36	"	10	"		14.46
"	"	"	Boston line,	675.00	675.00	8	"	4	"	3	9.73
Watertown St.,	"	"	Cook St.,	160.00	160.00	24x36	"	12	"	1	21.42
Watertown St.,	"	"	Pearl St.,	437.15	437.15	8	"	6	"	2	18.10
Waverley Ave.,	"	"	Washington St.,	545.03	545.03	8	"	4	"	3	8.90
"	"	"	Arlington St.,	339.45	339.45	8	"	6	"	2	9.73
"	"	"	Durant St.,	457.03	457.03	8	"	4	"	3	8.55
Wesley St.,	"	"	Centre St.,	652.97	652.97	8	"	4	"	2	7.58
William St.,	"	"	Watertown line,	183.50	183.50	8	"	4	"	1	9.18
Winthrop Ave.,	"	"		175.00	175.00	8	"	4	"	2	9.63

Early in the summer a force was organized to lay house connections, and the abutters were encouraged to make connections as soon as the sewers were laid by their premises in order to avoid the rush which naturally would occur as soon as the sewerage system was available for use. This force also laid several extensions not contemplated in the general contract. One hundred and twenty-nine house connections were laid, having a length of $7,759\frac{5}{10}$ feet of 6 inch pipe; twenty-two of these had underdrains, in which 1,161 feet of 4-inch pipe was laid.

ACKNOWLEDGEMENTS.

In conclusion I wish to extend to His Honor Mayor Hibbard, and to the various committees with whom the department have been brought in contact, my acknowledgements of my appreciation of their courtesy and confidence extended to me.

And to the assistants in this department I wish to acknowledge my appreciation of the earnest work and co-operation extended to me in performing the various works coming before us to execute.

Respectfully submitted,

ALBERT F. NOYES,

City Engineer.

APPENDIX A.

NOTES ON METHODS OF MAINTENANCE OF MACADAM ROADS IN FRANCE.

A Cantonier is a man who has charge of maintenance and repairs of a certain length of road. Employed by the year. Should live on or near his section of road. Should not be taken off for any length of time from his section, as he becomes irresponsible for the wear of the surface, and loses interest in his special job. Should be intelligent, and understand thoroughly the object to be gained, and how to take hold. The engineer and foreman should explain and show him when he is not getting good results, and the reason.

The length of section varies with the nature of the road-bed and surfacing and amount of work to be done, according to the judgment of the engineer.

(100 yards to 1 mile in city and 2 to 3 miles outside.)

Six cantons that are continuous form a section and the Cantoniers form a brigade, of which one is the chief (his canton is shorter than the others, that he may over-see them and go over their sections at least once a week).

A conductor has charge over 40 to 50 miles of road, to report on twice a month.

Each has a badge on his cap and a staff 6 feet long, iron shod, with a plate 7 x 10 inches having the number of the canton on it. It is always set up on the road within 100 yards of the place where he is at work.

Work to be done by the Cantonier.

Maintain the roads in proper condition each day, so as to be dry, smooth, firm, safe in icy weather, and looking well at all times.

Special orders may be given from time to time by the engineer.

1st. Maintain the drainage by cleaning out the gutters, grates, culverts, etc., and if necessary cutting small gulleys at the sides to let off the water.

2nd. Keep sidewalks clear and in shape, adding material if necessary and cutting off where wash has occurred, and piling up refuse to be removed by carts.

3rd. Remove as soon as possible all mud, with iron or wooden hoes or shovels (whether thick or thin mud), and put in piles along the side for removal.

4th. When dried out spread the piles of mud over the sidewalks when needed, or spread on adjoining lots, if not objected to.

5th. In cold weather be very particular not to have any ruts of mud freeze and harden in rolls.

6th. In dry weather remove the dust into piles on the sides.

7th. In winter remove the snow from road where or when it accumulates and impedes travel; spread it on adjoining lots or pile upon the side, to show location of the driveway.

8th. Break up all ice on the roadway and remove it, spread sand and gravel on dangerous slopes and round sharp corners.

9th. Break up ice in gutter or on side when it may cause a stoppage in time of thaw.

10th. In time of thaw hasten as much as possible the flowing off of all water so that it shall stand the least possible time on the road-bed to impede travel and injure the surface.

11th. Remove and break up all loose stones, or stones protruding from the surface, and pile up on the sides ready for measurement; also all stones in neighboring land that might answer for repairs.

12th. Cut and remove all weeds (specially before blossoms come out).

13th. Remove all obstructions from the road.

14th. Clean and keep in repair all fences, parapet walls, etc., on bridges, etc.

15th. Look after bounds, signposts, etc.

16th. Look after all grass plots, trees, etc., on the street, prop up young trees bent over by wind, etc.

Use of Materials.

To be used as needed; taking a wet day for repairs as much as possible; refrain from large patches, or from spreading material loosely with shovels. In wet weather notice where the road-bed gives under the wheel, and where water stands. Clean off these places and pick up around the edges deep enough only for cohesion.

The road metal that is picked up to be cleaned of all dirt and sand, and mixed with new metal for patching. To be well tamped down hard, then evened off with the surface of road.

Look after patches till they become perfectly hard, like the rest of the road-bed.

For common roads that are not surfaced, the same care to be taken, using what material may be at hand. All big stones to be removed, and not put on till broken up to proper size.

Where material is to be added to the road the engineer will designate where it is to be taken from; the surface to be picked up (after removing mud and ruts) to a depth of 1 1-2 to 2 inches, and material put on and tamped in not over 2 inch layers, and made firm.

Special jobs will be given each man when possible on his section, to which more careful attention will be paid when inspecting.

Hours.

1st. of April to October, 6 A. M. to 6 P. M., without leaving the road. October to April, sun rise to sun set; meals to be taken on the road at stated hours; two hours being allowed on the longest days for meals.

Tools to be Furnished by the Cantonier.

Wheelbarrow,	Pick,
Iron and Wooden Hoe,	Iron Bar,
Iron and Wooden Shovel,	Maul,
Iron Rake,	Tape Measure.

A 2 1-4 inch iron ring for broken stone, furnished by the engineer. Chief Cantonier to have

- 3 Sighting Levels,
- 1 Vertical Plumb for grades,
- 1 6-foot rule.

All tools to be repaired out of working hours.

Annual prizes up to one month's wages, awarded by Chief Engineer.

Fine of 3 days' pay for absence from job (3rd time discharged).

Average Cost of Repairs on Macadam Roads.

National Roads \$60.00 to \$500.00,

Average \$150.00 per mile per annum.

Important Department Roads,	135.00	"	"
Important Local Roads,	92.00	"	"
Ordinary Local Roads,	57.00	"	"
By-Roads,	42.00	"	"

Resistance to Traction.

Macadam,	100 lbs. per ton hauled.
Granite,	33-55 " "
Asphalt,	15 " "
Wood,	21 " "

In London the average wear of granite blocks has been found to be about 2 inches in 15 years. These blocks are then re-cut and used for 20 years on less important streets.

Macadam Roads in the City of Paris.

Each district covers about 11 miles of streets, including 1,570,000 square feet Roadway and 240,000 square feet Sidewalk, and is in charge of

- 1 conductor,
- 2 foremen,
- 78 Chief Cantoniers
- 887 Ordinary Cantoniers,

giving an average of from 15,000 to 24,000 square feet to each man.

Ten to twelve Ordinary Cantoniers are placed under one Chief Cantonier. They also help in relaying and rolling the new road-bed.

Total macadam in the city about 19,000,000 square feet; cost for maintenance on the average 3.9 cents per square foot, varying from 3 to 5 cents, with a maximum on one large avenue of 25 cents per square foot per annum.

For street 33 1-2 feet between curbs the macadam roadway is 20 feet wide, and paved gutters on each side 6 3-4 feet wide, where the heavy teams get better foothold.

Cost of steam rolling averages 6.2 cents per mile ton.

Steam roller weighs from 20 to 40 tons, and the average compression for from 5 to 6 inches of road metal is 3.7 to 4.3 mile tons.

Horse rollers weigh from 8 to 9 tons, used for small repairs.

Paved Streets in the City of Paris.

There is an area of about 62,000,000 square feet of block pavement in the city, which cost on an average 1 cent per square foot per annum for maintenance.

This maintenance is in charge of 371 Paving Cantoniers who are set off in gangs composed of

- 1 Head Paver,
- 1 Paver,
- 1 Stone Dresser,
- 2 Laborers.

This gives an average of about 170,000 square feet to each Cantonier. Each gang has the following tools:

- 1 Hand-Cart,
- 2 Bars,
- 2 Paving Hammers,
- 1 Paving Hoe,
- Picks and Shovels.

Paris Street Cleaning.

On principal thoroughfares the surface of the street is thoroughly washed every five or six days, and all mud swept off in the early morning each day. During the day the streets are watered several times, according to the weather, to lay the dust.

Watering carts are used on 200,000 square feet of paving per day, and on 100,000 square feet of macadam per day.

25,000,000 square feet of road-bed are watered by hose every day.

Watering by carts cost about 2 1-3 cents per thousand square feet of macadam, and 1 1-5 cents for stone paving.

Watering by hose costs about 1 1-4 cents per thousand square feet.

A horse and driver for the watering cart cost \$50.00 a month.

The sweeping of the streets is done by 122 gangs, composed of

170 Chief Cantoniers who receive \$22.00 per month.

140 Cantoniers who receive 18.00 per month.

2810 Laborers receiving from 22 to 37 cents per 1-2 day.

60,000,000 square feet costs for cleaning 1 cent per square foot per annum. 95,000,000 square feet costs 1-2 of a cent per square foot, making an average of about 7-10 of a cent per square foot per annum.

A hand sweeper will cover from 3 to 5,000 square feet per hour.

A machine sweeper will cover from 30 to 50,000 square feet per hour.

APPENDIX B.

ORDINANCES RELATING TO THE CITY ENGINEER'S DEPARTMENT.

ORDINANCE IX.

City Engineer.

SECTION 1. The office of the City Engineer is hereby established.

Office estab-
lished.

SECT. 2. He shall have charge of all the plans of the streets, drains, sewers, water-works, and lands of the city; and shall classify them, and put them in a convenient form for reference and use. He shall make all plans, surveys, measurements and levels pertaining to the streets, drains, sewers, lands, water-works, etc., and perform such other duties properly belonging to his office, as may be required of him by the Mayor, the Board of Aldermen, or any committee of the City Council. Drains and sewers shall be constructed and repaired under his supervision and direction.

Duties.
Charge of
Plans.

Make plans, sur-
veys, etc.,

SECT. 3. He shall prepare all orders, resolves, and other papers relating to street widenings, extensions and alterations, which the

Orders, etc.

Joint Standing Committee on Highways may require, and shall furnish the City Solicitor with descriptions of lands at his request.

Accounts.

SECT. 4 He shall keep a set of books showing all the debits and credits to every estate, the whole or a portion of which may be taken to lay out, widen, or extend a street, or which may be assessed under any betterment law; and all bills for assessments made under any betterment law shall be made out by him, and deposited with the City Treasurer for collection.

Reports.

SECT. 5. He shall annually, in the month of January, present to the City Council a report for the year ending on the last day of December preceding, giving in detail the cost of all special work of the highway department, the expense of his own department, the number of persons employed therein, and a description of the work done.

Building Ordinance.

Applications to
City Engineer
for street lines
and grades.

SECT. 6. No person shall proceed to erect or make alterations in the location or grade of any fence, wall, or building, a part of which is to abut upon a public street, lane, square or alley, without first applying to the City Engineer for the lines and grade of the street, lane, square, or alley, upon which he intends to build. Such application shall be made at least fifteen days before the work is begun; and the City Engineer shall within said time furnish the required lines and grade without charge, if in his power so to do. In default of such application the city shall be discharged from all

responsibility for damages resulting from such default.

SECT. 7. Whenever the City Engineer ^{Violation.} ascertains that any structure has been placed in violation of the preceding section, he shall at once give notice to the Mayor and Aldermen, in writing, of such violation; and, upon receipt of such notice, the Mayor and Aldermen may forthwith issue an order to the party offending, directing that the structure be removed within the time therein specified; and in case of non-compliance, the Mayor and Aldermen shall direct that the incumbrance be removed at the expense of the delinquent.

SECT. 8. Whoever violates any provision ^{Penalty.} of the two preceding sections of this ordinance, shall be liable to a fine not exceeding twenty dollars.

ORDINANCE RELATING TO DRAINS AND SEWERS.

*Be it ordained by the City Council of the City of Newton,
as follows : —*

SECTION 1. The word "Drain" when used in the ordinances and orders shall be construed to mean a pipe or conduit for the conveyance of storm or surface water, and the word "Sewer," when so used, shall be construed to mean pipes or conduits, for the conveyance of house sewage and ground or subsoil water only.

SECT. 2. All common sewers, ordered by the City Council to be made, shall be built and kept in repair, under the direction of the Joint Standing Committee on Sewers, and all drains so ordered, shall be built and kept in repair, under the direction of the Committee on Highways.

SECT. 3. The City Engineer shall, under the direction of the Committee on Sewers, have the general supervision and inspection of all the common sewers, built or owned by the City, and of all connections of private sewers, built under the provisions of this ordinance, and he shall make plans and profiles of all main drains and common sewers, built under the direction of the Committee on Highways and the Committee on Sewers, showing their location with reference to other drains and sewers and the street lines, and showing the location of all private drains or private sewers entering them; which plans and profiles shall be filed in the office of the City Clerk, and after being so filed, shall be deposited in the office of the City

Engineer, which shall be deemed a part of the office of the City Clerk, for the keeping of said plans.

He shall keep, and whenever requested, report to either branch of the City Council, an accurate account of the cost and all other expenses upon each main drain and common sewer; and he shall, annually, in January, submit a report of all work performed during the year, ending on the last day of December preceding, and the amount of all expenditures from the appropriation for sewers and drains.

SECT. 4. Whenever any street shall be opened for laying or repairing water or gas pipes, or for any other purposes, the work shall be executed so as not to obstruct the course, capacity or construction of a main drain or common sewer; and whenever pipes for that purpose, or any work of construction shall be found to exist in such location so as to interfere with the main drain or common sewer, the corporation, person or persons having charge of or maintaining the same, shall, on notice, at once remove, change or alter such pipe, in such manner as the City Engineer shall direct, and if they neglect or refuse so to do, said City Engineer may make, or cause to be made, such removal, change or alterations, and the cost of the same shall be paid by the said corporation, person or persons.

SECT. 5. The whole of the average cost of the system of sewers (already determined and found to equal two dollars and fifty-six cents per running foot) shall be assessed according to law, provided that no estate shall be assessed until it can be drained into the sewer; and no estate shall be assessed more than once for the same benefit; if the cost of such sewers exceed the average cost hereinbefore mentioned, such excess of cost shall be borne by the city. The City Engineer shall prepare and submit to the City Council plans of the estates to be assessed, showing the owner's names, frontages and areas, together with a schedule showing the assessments on the estates abutting and benefitted. Such

assessments to be determined as follows: Four-tenths of the benefit according to the relative frontage, and six-tenths according to the area of the estates within one hundred and eighty feet of the street in which the common sewer has been constructed; provided that upon corner lots, the first hundred feet of frontage upon the second street in which the sewer is constructed shall be exempt, and no area assessed upon the first street shall be assessed upon the second street. The said four-tenths having been ascertained to be sixty cents per front foot, and the said six-tenths having been ascertained to be six mills per square foot, said sums are hereby adopted as the standard rate of assessment. The amount assessed and certified by the City Council, shall be entered upon the plan prepared for assessment.

SECT. 6. All applications for the construction of private sewers and their entrance with common sewers, and for permission to enter the same, shall be in such form as the Committee on Sewers shall prescribe, and filed with the City Engineer. All such private sewers within street limits and their entrances into common sewers shall be constructed, maintained, and kept in repair by the City Engineer, under the direction of the Committee on Sewers, and shall be the property of the City, and the cost thereof shall be paid by the owners of the estate connected before the same are used or house connections made therewith.

The cost of all repairs made thereon shall be paid by the owner of the estate connected.

SECT. 7. No person other than the City Engineer or city employes, acting under his direction and supervision shall construct any private sewer within street limits, or connect the same with any common sewer or dig up any street for such purpose.

SECT. 8. All applications for entering private drains into main drains, shall be in such form as the Committee on Highways shall prescribe, and filed with the Super-

intendent of Streets. No person shall enter a private drain into any main drain without a permit from the said Committee on Highways, nor without first paying such sum as the Mayor and Aldermen shall determine for the privilege.

SECT. 9. Whenever any private drain or private sewer connecting with any main drain or common sewer, shall become clogged, obstructed, broken, out of order, or detrimental to the use of said main drain or common sewer, or unfit for the purpose of drainage, the owner, or other person having charge of any building, yard, lot of land or other premises which are drained by said private drain or private sewer, shall, within five days after notice in writing from the City Engineer, remove, reconstruct, alter, cleanse or repair said private drain or private sewer, as the conditions thereof may require. In case of neglect or refusal to remove, reconstruct, repair, alter, or cleanse said private drain or private sewer for such space of five days, the Mayor and Aldermen shall cause the same to be removed, reconstructed, repaired, altered or cleansed, as they may deem expedient, at the expense of the owner, or person having charge of the same, who shall also be liable to a penalty of not more than twenty dollars for such neglect or refusal.

SECT. 10. No exhaust from steam engines, and no blow off from steam boilers, shall be connected with any common or private sewer, or any main or private drain.

SECT. 11. No private sewers between the street limits and the building to be drained shall be laid except by the City Engineer, or properly authorized person acting under his supervision and inspection. Whenever it may be deemed necessary, the Mayor and Aldermen may license such private sewer layers as apply and are found competent. Said license shall remain in force until the first of the succeeding April, unless sooner revoked. No such private sewer, if of vitrified pipe, shall be laid of a less size than five inches, or a

greater size than six inches interior diameter; and if of iron it shall not be of a less size than four inches, or of a greater size than five inches interior diameter, and shall be of extra heavy pipe, and all the work shall be done as directed by City Engineer and subject to his inspection and approval. No such private sewer shall be laid by a private licensed sewer layer, without a permit in writing from the City Engineer, and on the completion of the work, the permit shall be returned to the office of the City Engineer, indorsed by the layer of the sewer, with the statements of his proceedings thereunder. Each permit shall be subject to the provisions of this ordinance, and shall state in detail the premises to which it applies, and the time, place, manner, and construction of such entrance.

SECT. 12. Every person licensed as provided in the preceding section, shall, before performing any work by virtue of such license execute a bond to the City in the sum of two thousand dollars, with two good and sufficient sureties, to be approved by the Mayor and Aldermen, conditioned that he shall comply with the terms of the permit under which the work is performed; that he will cause the excavations to be properly fenced along the street line; that he will maintain one or more lighted lanterns in a conspicuous place over the obstructions, from twilight in the evening and through the whole night, that he will properly make all connections and joints in every private sewer constructed by him, and will leave no obstruction of any description in said private sewer; that he will properly close up the excavation, and that he will indemnify the hold harmless the City of Newton from any damages or cost to which it may be put by reason of damages or injuries sustained by any person resulting from neglect or carelessness in making or repairing such sewer, or in properly fencing or lighting any excavation or obstruction, or in performing any other work connected therewith.

SECT. 13. The crown of each sewer laid out by the City Council shall be established as the grade for drainage and sewerage for the territory for which such sewer is so laid out. The bottom of the cellar or basement cellar of every building hereafter constructed shall be at such an elevation that the private drain or private sewer from said cellar or basement cellar shall have a fall of at least one in fifty to the crown of the main drain or common sewer, unless the City Council shall otherwise permit. If any person constructs or attempts to construct or use any cellar or basement cellar in violation of this section, the City Council may order the owner or occupant of such cellar or basement cellar, so to alter and construct the same, as to conform to the requirements hereof, and if such owner or occupant fails to comply with such order within ten days after service thereof according to law, said City Council may cause the required alterations to be made therein, the expense whereof shall constitute a lien upon the land wherein such cellar or basement cellar shall be constructed, and upon the building or buildings thereon erected, and may be collected in the manner provided by law for the collection of taxes upon real estate.

SECT. 14. Section (4) four of ordinance (XVI) sixteen, relating to highway department, streets and ways, of the Municipal Register of 1883, is hereby repealed.

RULES AND REGULATIONS OF THE NEWTON
WATER DEPARTMENT, RELATING TO
THE CITY ENGINEER.

Section 2. — Organization.

1. Beside the offices of the Water Registrar and Superintendent established by ordinance, the permanent organization of the department shall be as follows:—

A Civil Engineer, an Inspector of Meters and Fixtures, a Pumping Engineer, a Fireman, a main-pipe Foreman, a service-pipe Foreman, three Teamsters, and a Clerk in the office of the Water Board. It is understood that the City Engineer is Civil Engineer of this department.

Section 6. — Engineer.

1. Upon receipt of orders therefor from the Board, the City Engineer shall, within twenty-four hours, establish lines and grades for the extension of all water-mains, and shall take such measurements of main and service pipe extensions, and their appurtenances, as will enable him to correctly locate and plat the same; he shall keep the returns from the Pumping Engineer closely posted up, and shall plat therefrom a diagram showing the engine duty.

2. He shall make a daily report to the Water Registrar of the progress and condition of the work under his charge.

3. He shall perform such other duties as the Board may from time to time by vote require of him.

CITY OF NEWTON.

REPORT

OF THE

SUPERINTENDENT OF STREETS,

For the Year 1891.



NEWTON UPPER FALLS:
FANNING PRINTING CO.
1892.

HIGHWAY DEPARTMENT.

Highway Surveyors and Joint Standing Committee on Highways.

ALDERMAN JOHN A. FENNO, *Chairman.*

ALDERMAN FREDERIC M. CREHORE.

ALDERMAN ARTHUR F. LUKE.

COUNCILMAN EDWARD L. COLLINS.

COUNCILMAN GEORGE F. RICHARDSON.

COUNCILMAN HENRY E. BOTHFELD.

COUNCILMAN WILLIAM F. GRACE.

EXECUTIVE OFFICERS.

Superintendent of Streets.

CHARLES W. ROSS.

Assistant Superintendents of Streets.

GEORGE E. STUART. CHARLES L. BERRY. CHARLES A. PECK.

City Engineer.

ALBERT F. NOYES.

REPORT OF THE SUPERINTENDENT OF STREETS.

To the Honorable Mayor and City Council:

GENTLEMEN:—In accordance with the requirements of the City Ordinances, I herewith submit my first annual report as Superintendent of Streets of the City of Newton. The report of the City Engineer has embodied all the matters relative to this department, as required by ordinances, and I would respectfully refer to his report for the detailed statements of expenses and cost of the work performed in the Highway Department.

The City of Newton presents some peculiar features that should be kept in mind whenever considering the matter of expenses on highways.

The territory covered by the city amounts to somewhere about 11,500 acres, or eighteen square miles in round figures. This is formed of the original eight villages of Newton, Newtonville, West Newton, Auburndale, Newton Upper Falls and Newton Lower Falls, Newton Highlands and Newton Centre, each one extending out from a nucleus of more or less closely built up streets and stores; the smaller villages of Nonantum, Riverside and Chestnut Hill, and the new growing districts of Waban, Eliot and Woodland, all closely connected around the circumference of an oval from three to five miles in diameter, defined by a range of hills separating the city in two parts. There are also the outlying villages of Oak Hill district and Thompsonville.

Connecting all these localities are long stretches of streets and roads but slightly built upon at present, but

which have to be maintained and cared for as well as those in the more settled sections.

This condition of things frequently causes delay in getting the more bulky apparatus over the hills from one side to the other of the city as the local needs may require, and is an important factor in considering the matter of duplicating some of the plant in order to have the same facilities for executing the work expeditiously on both sides of the city at the same time, as is frequently needed.

The city is crossed by five important roads, viz.: Washington, Boylston, Beacon, Centre and Walnut streets, which form the main thoroughfares between Boston, Brookline, Dedham and Needham, Wellesley and Watertown, over which loaded freight teams constantly travel, and add to the natural wear of the roadbeds caused by the traffic of the city itself, thus adding materially to the cost of maintenance of these streets.

There are in Newton, some 169 miles of streets, divided as follows :

	Ward.	Miles accepted.	Miles unaccepted.	Total.
1st District.	7	15.59	1.48	17.07
“ “	1	8.03	2.94	10.97
“ “	2	17.12	7.04	24.16
2d District.	3	16.27	6.91	23.18
“ “	4	23.39	13.20	36.59
3d District.	5	23.98	12.55	36.53
“ “	6	9.82	10.92	20.74
		<hr/> 114.20	<hr/> 55.04	<hr/> 169.24

The general run of streets of the city when I was placed in charge of the department was in a fair condition, and the force employed in the different parts of the city formed of old and efficient servants of the city, so that few changes were found necessary either in the force or the form of the general management of the department.

The Force.

The force employed on the highway work consists of about forty-two men permanently employed in taking care of the horses, carts, tools, and city property generally, and five men to attend to the collection of ashes. Besides these, from 200 to 400 men are employed during the working season, who are taken on gradually as the work to be done requires the services of additional help. This whole force is grouped into three divisions, each in charge of an Assistant Superintendent having a certain portion of the city to look after. The divisions are as follows:

1st District, including Wards 1, 2, and 7, in charge of Assistant Superintendent, George E. Stuart.

2d District, including Wards 3 and 4, in charge of Assistant Superintendent, Charles L. Berry.

3d District, including Wards 5 and 6, in charge of Assistant Superintendent, Charles A. Peck.

General Care of the Streets.

In this matter a new system for Newton was inaugurated this year at the suggestion and under the encouragement of His Honor, Mayor Hibbard, as far as relates to the principal streets of the city.

Although criticised at first by many of our prominent citizens, the results have been so satisfactory as to be now considered the cheapest and best method of repairing and maintaining most of our streets.

The system consists in dividing the streets into sections of about equal importance, considering the area of road-bed, amount of travel and consequent wear of road metal, and actual condition of the street. One man is put in charge of each section, whose duty is to keep it constantly in good order; that is to do all necessary patching, filling up all ruts and gulleys, keep gutters clear of mud, weeds and leaves,

trim the grass borders, look after the sidewalks, and in fact keep a constant watch for all defects liable to appear either from natural wear, or the effects of storms, and repair the same directly, as far as possible, and report all those of more importance that he cannot remedy.

As an incentive to this work and in order to encourage the men in taking hold of this, to them, new method, his Honor, Mayor Hibbard offered some \$200 to be distributed in prizes, at the end of the year, by the Highway Committee, for the best kept sections.

This year the plan was tried by putting ten of the best men of the department at work on sections of about two miles each, of the principal streets, this length varying somewhat according to the location and amount of travel. Each man was equipped with a wheelbarrow, shovel, iron and wood rakes, edging-knife, cord line, pick and sickle. With these tools he was expected to keep his section in good order at all times.

At first a section seemed a long piece of work to attend to, but by the end of the first month, when the men got accustomed to the different kinds of work required, and the best order in which each should be done, people began to notice the improvements.

Gravel and crushed stone were dumped, at intervals, along the side of the streets as might be required for use in patching up whatever holes or ruts might appear in the road-bed or on the sidewalks.

The Superintendent and Assistants could oversee the work as they travelled over the city from one piece of work to another, and note any neglect or correct any defects in the manner of doing the work, and see what progress was being made, and whether the men were attending properly to their work.

All the section-men succeeded remarkably well in their undertaking, and I would respectfully recommend that the

system be extended the coming year to additional lengths of streets, so as to make twenty instead of ten sections thus cared for. I think the work done in this way will not only improve the appearance of our streets, but will increase the life of the road-bed and be a considerable economy in the cost of maintenance. The season during which this system was applied was from and including April to December.

There were 22.40 miles or about 442,000 sq. yards of road-way cared for this season under the section system, at a cost of some \$4,414.74. The portion of streets included in this were as follows:

SEC.	STREET.	LOCATION.	Length.	Width.	Sq. yds. road per ft.	AREA OF ST.
1.	{ Washington . Centre . . .	Craft to Boston . .	6,250	55	3.66	22,917 sq. yds.
		Washington to Church	1,500	60	4.50	6,750 "
2.	{ Waverly Ave. Sargent . . .	Washington to Ward	6,030	50	3.50	21,105 "
		Center to Waverly .	2,434	40	3	7,302 "
3.	{ Washington . Walnut . . .	Craft to Cross . . .	5,650	55	3.66	20,716 "
		Watertown to Mill .	4,800	50	3.50	16,800 "
4.	{ Waltham . . Watertown .	Watertown to Craft .	4,400	50	3.50	15,400 "
		Waltham to Town line	8,400	60	4.50	37,800 "
5.	{ Washington . Auburn . . . Woodland . .	Cross to Auburn . .	4,867	50	3.50	17,035 "
		Wash. to Woodland .	5,183	50	3.50	18,140 "
		Auburn to Wash. . .	4,000	40	3	12,000 "
6.	{ Washington . Grove . . . Concord . . .	Auburn to River . .	7,560	50	3.50	26,460 "
		Wash. to Pine Grove	2,150	40	3	6,450 "
		Wash. to River . . .	3,400	50	3.50	11,900 "
7.	{ Center . . . Franklin . . . Ward . . .	Church to Ward. . .	6,300	60	4.50	28,350 "
		Center to Waverly .	1,800	40	3	5,400 "
		Center to Hammond .	5,100	45	3 33	17,000 "
8.	{ Center . . . Beacon . . . Beacon . . . Walnut . . .	Ward to Beacon . .	3,100	60	4.50	13,950 "
		Center to Boston . .	7,500	70	5.33	40,000 "
		Center to Walnut . .	3,250	50	3.50	11,375 "
		Mill to Beacon . . .	4,200	50	3.50	14,700 "
9.	{ Center . . . Walnut . . . Lincoln . . . Hartford . .	Beacon to Boylston .	5,000	50	3.50	17,500 "
		Boylston to Hyde . .	2,500	50	3 50	8,750 "
		Walnut to Woodward	2,164	50	3.50	7,574 "
		Lincoln to Boylston .	1,025	40	3	3,075 "
10.	{ Elliot . . . High Chestnut . . .	Boylston to River . .	4,600	45	3.33	15,333 "
		Boylston to Elliot .	2,500	40	3	7,500 "
		Boylston to Oak . . .	3,600	40	3	10,800 "
			119,263			442,082 sq. yds.

The other portions of the streets have been cared for periodically by the regular force in each district. Whenever important repairs were called for, the whole district force, exclusive of the section-men were united at one place. The total spent on Highway General Repairs was \$60,361.74, and on Drains and Culverts \$6,088.72.

During the present year the sewer construction in portions of Wards 1, 2, and 7, has added greatly to the amount of repairs to be done on the streets. This same cause will continue for some time to come, owing to the settlement which is bound to take place in the filling put in the trenches, however well they may be puddled. On account of this very settlement it would not I think be advisable to renew the road-bed of these streets at present; but rather patch them as needed temporarily till the settlement is completed. The building of the sewers for the next few years in the various parts of the city is going to materially increase the cost of maintenance in all districts.

Special Work.

Besides the appropriation for general Highway Repairs and Improvements, there were special appropriations made last year for some specific sections of the city. In doing these pieces of work the method used has been to mass the whole available force of the department in one gang, under the Assistant Superintendent of the particular district where the work was to be performed, and proceed with one piece of work at a time, carrying it rapidly through to completion. This has been found to be much more economical than to employ only one single district force on a job; besides closing a section of street to public travel for a much shorter time, which is an item much appreciated by our citizens. The work performed in this manner was in the following streets: Arlington, Bellevue, Boyd, Boylston, California, Chapel, Cabot and Harvard, Centre, Elliot and Hammond

street from the depot towards Beacon street, and also through the ledge section; Woodland avenue from Washington to Grove street. The details of cost of this work will be found tabulated in the report of the City Engineer. The total amount expended was \$22,581.07.

Appropriations were also made last year for some special drains. In order to carry on this work without interfering with the other work of the department, one drain gang was organized and equipped under the charge of James Cannon, with portable tool-boxes and tools necessary for handling and laying drain-pipes. The work done by this force was as follows:

Finishing up the Court street drain and putting in drains on Lenox street, Hillside avenue, Otis street, Murray and Otis streets, Woodland avenue, Maple street, and Berkeley place, Central avenue and Washington street, Oak and Chestnut streets; Chestnut street at Highland street; Linwood avenue or Page's drain, and River street at Lexington street. Total expenditure \$16,568.74.

Gutters.

Considerable work has been done each year in paving the gutters at the sides of the streets to allow of the free running off of rainwater, and more will be needed each year. The usual custom has been, when a gutter was found needed, to pave a strip twenty-four to thirty-six inches on either side of the roadway with cobbles. This naturally facilitates the running off of the water, without forming gulleys or undermining the road metal; but the unevenness of the surface formed by the nodules of the cobbles causes mud to accumulate, and in warm weather, weeds quickly start up between the stones. These weeds cause leaves and twigs to accumulate and retard the flow of water, unless constantly dug out, and this is a hard and slow job. Each winter the

frost throws the stones out some, so that repairs are needed from time to time.

Hard concrete gutters do not present these drawbacks. To be sure they cost more in the first outlay, but are much more durable; they do not clog up, and the leaves do not collect in them in the autumn, as they do on the cobbles. We still have some concrete gutters on Centre street, that were laid six or more years ago that are in good condition now. This year considerable length of concrete gutters were laid, and I would recommend that concrete, rather than cobbles, be used as far as possible in the future, as a matter of economy in annual cost.

The expenses on gutters are included in the general repair account of the different streets and amounted to \$3,511.16 for construction; (this includes 1,398 sq. yards of concrete gutters put in this year at a cost of \$1,608.60) and \$5,363.19 for cleaning gutters.

Curbing.

Granite Curbing is set in sidewalks only when petitioned for, and one half the cost assessed on the abutters.

There was set this year 3,056 linear feet of granite curbing at a cost of \$2,146.54.

Sidewalks and Street Crossings.

Gravel sidewalks have been built during the year as far as possible with the appropriation available, wherever petitioned for and found to be really needed; when fine crushed stone is available this has been used for surfacing the sidewalks, much to the improvement in the looks and the quality of the surface. Where concrete has been laid, the surface has been as usual prepared both on the sidewalks and the street crossings by the street gangs ready for the concreters. Some of the old plank sidewalks have been repaired

or entirely renewed, as on Hammond street, and some new plank walks put in when petitioned for. There was spent on sidewalks and street crossings \$19,229.00, including \$9,761.61 for concrete bills.

Removal of Snow, and Sanding Sidewalks.

There are few cities that do as much in the matter of clearing off or levelling snow over the roadway as is done in Newton, yet there are many causes for complaint. Many people right in the villages are very slack and dillatory in the matter of clearing the snow off of their sidewalks; they leave it as long as possible hoping that some of the street force will come along and do the work for them rather than wait to bother them to do it. Measures should be taken to have the ordinances in relation to cleaning sidewalks more rigidly enforced.

In the winter the forces of the department are divided up so as to start out with snow ploughs as soon as a storm abates, and plough out the sidewalks, doing the principal streets and the centre of the villages first. For this purpose there are used eleven horses and ploughs in Wards 1, 2, and 7; nine in Wards 3 and 4, and ten in Wards 5 and 6. The cost of this work during the year amounted to \$3,129.21.

During the cold weather I have made it a point to have sand sprinkled over all icy and slippery sidewalks as soon as possible, in order to prevent all accidents; and would consider it a favor to be notified as early as possible of all dangerous places noticed by the public. Much of this work would be unnecessary if the abutters cleaned off the snow at the proper time. Cost of sanding sidewalks \$1,382.16.

Bridges.

In the early summer, a contract was made with Messrs. Wilson & Dwyer of Newton Upper Falls, for repairing the

bridge across Charles River at Boylston street; this called for replanking and new railing, at a cost of \$225, the Town of Wellesley bearing one-half the expense.

The bridge on Washington street, Lower Falls, needs to be replanked, and this work should be undertaken early this year.

The bridges at Bemis, Auburn, Concord, Wales, Elliot, Needham and Nonantum streets over the Charles River, and those at St. James, Bellevue, Auburn, Woodland, Washington, Beacon and Hammond streets. over the B. & A. Railroad are generally in a satisfactory condition.

Shade Trees.

One of the special features and ornament of our streets are the shade trees that have been set out from time to time on either side, and they should in all cases be cared for by the authorities, but on some of the narrower streets they should be set inside of the boundary line rather than on the curb line to insure their protection and growth. The propriety of this will be specially noticed where concrete walks are laid with edgestones. As the trees increase in size, the roots grow up under the concrete and so break it up that it is soon disintegrated; then when the concrete is repaired the protruding roots have to be pared off, and the trees becomes one sided and loses much of its charms. One thing has been overlooked in this matter and that is that when the trees were first set out, elms and maples were put in alternately; the quick growing maples soon giving shade while the slower growing elms were getting their growth. But the original intention was that when the elms were full grown the maples would be thinned out so as to allow some sunlight to reach the road bed. At present some of our streets are so shaded that for considerable time after a storm the road bed is covered with mud and pools of water that dry out very slowly as the sun gets no access to them; and the atmos-

phere of the street is constantly damp. These streets should be taken in hand and the surplus trees cut out, so as to let more light in, and also give the elms a better chance to develop.

The cost of trimming trees on the streets amounted to \$599.91.

Sign Posts.

Although there are quite a number of sign posts located in various parts of the city, yet there are many streets without them, and many corners where there is need of posts giving the traveller the name of the intersecting streets. This matter should be taken up this coming season, and the streets uniformly furnished with suitable name posts. Many of the old ones are about worn out, and the others are in need of repainting. I would recommend that those that are still serviceable be painted this winter and new ones procured and put up as fast as convenient.

Collection of Ashes.

As has been customary in former years the city carts make a weekly call at each house for the collection of ashes. For this purpose a special force is employed, consisting of five men and two carts to make the rounds, taking one ward each day. In mid-winter one additional cart is employed on this work, owing to the extra amount to be collected, and the greater difficulty in getting around.

The total expense of this work was \$4,933.37.

Crushed Stone.

During the present year the system of having the stone for the macadam-roads crushed by contract has been in force. Owing to unforeseen circumstances, the Contractor after supplying some 5,500 tons of crushed stone was obliged to

suspend operations, and as the city was in need of more stone, it was deemed best to carry on the contract for the account of the bondsmen, by the highway department. This was done from September 24 to December 20, during which time some 5,300 tons were crushed at the ledge on Murray street, and at the pit on Bourne street, at a cost of \$3,280.83.

Street Watering.

Hitherto the watering of streets has been left entirely in the hands of private parties, who went around and collected one half the cost from abutters on the streets, the city paid one half the cost and paid the Water Department for the water used, as estimated from the capacity of the carts. Last year a law was passed allowing cities to water the streets and assess the cost in part on the property abutting the streets watered. This method has been in force the past year and has in general given satisfaction. The city made contracts with the parties owning the watering carts, for the use of carts, horses and drivers, and the Water Department supplied the water. The routes for the carts were practically the same as for last year, and the men were supposed to go over them as often as required by the Superintendent of Streets. Some forty miles of street, or 710,000 square yards of road bed were thus watered, between the 15th of April and the end of November, fourteen carts being used.

The total cost including the appropriation for water was \$11,538.57. The following is the list of the streets watered during the year:

WARDS 1 & 7. *John Joyce — One Cart.*

Bacon street, from Washington street to Pearl street.

Boyd street, from Emerson street to Fayette street.

Centre street, from Watertown line to B. & A. R. R.

Channing street, from Washington street to Pearl street.

Emerson street, from Boyd street to Pearl street.

Hall street, from Washington street to Centre street.

Hovey street, from Washington street to Waban street.

Jefferson street, from Centre street to Williams street.

Jewett street, from Washington street to Waban street.

Peabody street, from Washington street to Pearl street.

Pearl street, from Bacon street to Emerson street.

Nevada street, from Watertown street to beyond Clifton street.

Thornton street, from Washington street to Pearl street.

Waban street and park, from Thornton street to Pearl street.

Walnut park, from Waban park to Washington street.

Washington street, from B. & A. R. R. to Adams street.

Watertown street, from Nevada street to Watertown line.

Wards 1 & 7. Timothy Stuart—Three Carts.

Arlington street, from Pembroke street to Waverley avenue.

Baldwin street, from Elmwood street to Vernon street.

Bellevue street, from Centre street to B. & A. R. R.

Bennington street, from Centre street westerley.

Centre street, from B. & A. R. R. to Cabot street.

Church street, from B. & A. R. R. to Eldredge street.

Church street, from Park street to Waverley avenue.

Copley street, from Washington street to Hunnewell avenue.

Durant street, from Waverley avenue to Pembroke street.

Eldredge street, from Elmwood street to Franklin street.

Elmwood street, from Centre street to Park street

Fairmont avenue, from Centre street by Ware's.

Franklin street, from Centre street to Waverley avenue.

Grassmere street, from Washington street to beyond Byfield's.

Hunnewell avenue, from Washington street to St. James street.

Ivanhoe street, from Kenilworth street to Montrose street.

Kenilworth street, from Waverly avenue to Ivanhoe street.

Kenrick park, both sides.

Linden terrace, from Hunnewell avenue.

Montrose street, from Waverly avenue to Ivanhoe street.

Newtonville avenue, from Centre street to Summit street.

Park street, from Washington street to Sargent street.

Pembroke street, from Durant street to Arlington street.

Sargent street, from Centre street to Waverly avenue.

St. James street, from Hunnewell terrace to Washington street.

Summit street, from Newtonville avenue to Bellevue street.

Tremont street, from Park street to Boston line.

Vernon street, from Centre street Waverly avenue.

Washington street, from B. & A. R. R. to Boston line.

Waverly avenue, from Washington street to Cotton street.

Wards 2, 3, & 4. W. H. Mague — Six Carts.

Ash street, from Auburn street to Islington.

Auburn street, from Washington street to Woodland avenue.

Austin street, from Walnut street westerly.

Beacon street, from Washington street easterly.

Bowers street, from Walnut street to Harvard.

Cabot street, from Walnut street to Harvard.

Central avenue, from Washington street to Crafts street.

Central street, from Woodland avenue east to end.

Cherry street, from Washington street to River street.

Chestnut street, from Washington street to Felton's.

Concord street, from Washington street to B. & A. R. R.

Crafts street, from Central avenue to Clifton street.

Elm street, from Washington street to River street.

Grove street, from Auburn street to Woodland avenue.

Grove street, from Washington street to Cornell street.

Highland avenue, from Walnut street to Mt. Vernon street.

Highland street, from Washington street to Fountain street.

Hillside avenue, from Chestnut street easterly.

Hunter street, from Highland street to Putnam street.

Lenox street, from Highland street to Otis street.

Lexington street, from Auburn street to Staniford street.

Lowell street, from Washington street to Watertown street.

Maple street, from Central street to Berkeley place.

Margin street, from Chestnut street to Washington street.

Melrose street, from Auburn street to Seaverns street.

Murray street, from Otis street to Highland avenue.

Newtonville avenue, from Walnut street to Harvard street.

Otis street, from Walnut street to Murray street.

Otis street, from Chestnut street to Hillside avenue.

Prince street, from Temple street to Berkeley street.

Putnam street, from Margin street to Temple street.

River street, from Waltham street to Cherry street.

Temple street, from Highland street to Sterling place.

Walnut street, from Linwood avenue to Washington street.

Walnut street, from Washington street to Homer street.

Waltham street, from Washington street to Davis avenue.

Washington park, from Walnut street to Harvard street.

Washington street, from Adams street to Charles river.

Watertown street, from Washington street to Kimball street.

Watertown street, from Walker street to Broadway.

Webster street, from Waltham street to Webster park.

Woodland avenue, from Auburn street to Washington street.

Ward 5. John P. Keating — One Cart.

Bowdoin street, from Forest street to Erie avenue.

Boylston street, from Woodward street to Hartford street.

Centre street, from Walnut street to Winchester street.

Centre street, from front of Haywood's.

Chester street, from Lincoln street to Hillside avenue.

Dunklee street, from Walnut street westerly.

Floral avenue, from Walnut street to Hyde street.

Forest street, from Walnut street to Bowdoin street.

Hartford street, from Lincoln street to Boylston street.

Hyde street, from Floral avenue to Centre street.

Lake avenue, from Walnut street to Griffin avenue.

Lincoln street, from Walnut street to Woodward street.

Walnut street, from Griffin avenue to Centre street.

Woodward street, from Boylston street to Lincoln street.

Ward 6. Thomas R. Frost — Three Carts.

Beacon street, from Stevens' estate to Boston line.

Centre street, from Clark street to Sargent street.

Crescent avenue, from Centre street to Pelham street.

Crystal street, from Beacon street to Lake avenue.

Grafton street, from Centre street to Homer street.

Hammond street, from Ward street to Brookline line.

Homer street, from Centre street to Pleasant street.

Kingsbury street, from Hammond street southerly.

Lake avenue, from Beacon street to Griffin avenue.

Parker street, from Centre street by Bond's estate.

Pelham street, from Centre street to Crescent avenue.

South street, from Beacon street to Ward street.

Station street, from Centre street to Chase street.

Sumner street, from Beacon street by Dr. Hovey's estate.

Ward street, from Centre street to Hammond street.

Willow street, from Centre street to Sumner street.

Steam Road Roller, and Road Scraper, etc.

The present steam road roller has been in constant use now for about eleven years, and has done good work, with scarcely any repairs; but has now got to a point when it must be overhauled, and some worn out parts renewed. I think our citizens would regret very much if we had to return to the old method of rolling new gravel surfaces with private vehicles; yet the time has come when the roller may break down at any time, in some of its important parts, and thereby be put out of service for considerable time. I trust that soon an additional roller will be added to the plant of the department as I consider it one of the best investments for highway work; and the loss of time in getting the roller from one side of the city to the other, as the work requires, is considerable. If a new one could be purchased, and the old one put in order one could be kept on each side of the city, and the work of repairs much expedited.

The city road scraper has done and still does good work, but a second one is needed to keep the roads in good shape, and I would respectfully recommend that a new one be procured as soon as possible, that can be used in levelling off the snow this winter and clearing it from the gutters, where it accumulates from the sidewalks into the centre of the streets, where it wears off the most rapidly. This kind of a scraper enables the form of the road bed to be kept in winter nearer its regular shape, and allows the water in time of thaw to run off much more evenly and rapidly than when the gutters are simply ploughed out, leaving a ridge of snow on the side to hold the water back on the street.

A new street sweeper is also greatly needed in the department for removing light mud and the fine dust and rubbish in summer.

Highway Stables.

At the present time the Highway Department has stables in different parts of the city in connection with the Fire Department; they are located as follows:

Wards 1 & 7. Washington street, Newton, rear of Steamer 1 House, eight stalls, and sheds for carts.

Ward 2. Washington street, Newtonville, rear of truck house, nine stalls, with roller shed on west side, and shed for carts on east side, and yard around the house for storage of curbing, paving, cap stones, drain pipe, etc.

Ward 3. Washington street, West Newton, east side and basement of Steamer 2 House, nine stalls, and sheds in the rear.

Ward 4. Auburn street, Auburndale, west side of hose house, three stalls, no sheds.

Washington street, Lower Falls, Engine house, one stall.

Ward 5. Pettee street, Upper Falls, rear of Hose House, five stalls and sheds.

Ward 6. Willow street, Newton Centre, stable on lot west of Steamer 2 House, eight stalls and sheds.

All these buildings were repaired more or less within a few years, are in a fair condition, and are mostly well located for the work to be done. I would suggest merely that e'er long alterations along the railroad will curtail our premises at the truck yard; in the first district including Wards 1, 2, and 7, the stable expenses would be reduced and the district better served if the two stables on Washington street at Newton and Newtonville were abandoned and united in a single building located on Crafts street, near the lot occupied at present by the sewer and water departments, where a good stock yard could be had more convenient to the railroad freight yards, and less open to the public view than the present one at the truck yard.

The total number of horses at the beginning of this year was thirty-four. Of these one died, and three have

been exchanged as being too old for the work to be performed, and therefore too expensive to keep. In addition three new horses have been bought; at the present time there are five horses that should be disposed of on account of age, and replaced by new ones capable of doing first-class heavy work.

Of the thirty-six horses now owned by the department, two are used exclusively for the collection of ashes, two for the Superintendent, one for an Assistant Superintendent, and the others on general work. When any special work is being performed, additional horses and carts are hired with their driver to work by the day.

During the year, three new carts, six sleds, six snow-ploughs, and eight gutter ploughs were added to the plant of the department.

I would respectfully recommend the buying of a set of new double harnesses to replace a set that is worn out; also a street sweeper.

New Highway Sheds.

At the present time all the sleds, ploughs, carts, etc., not in use have to be piled up in the store-yard exposed to all weathers and the heat of the sun, or stacked up in one or two sheds that are needed for other purposes. I would earnestly submit to the City Council the urgent need of a new shed, giving suitable storage room in summer for all the sleds, snow-ploughs and other tools not needed on the work, and giving also a work-shop where carts and tools can receive small repairs, be overhauled and painted in stormy weather under shelter, by the permanent force; also a shop where the steam roller can be conveniently taken apart with hoisting apparatus for lifting off the heavy pieces. The present roller shed is quite inadequate for the purpose, owing to its size and want of proper light.

Appended will be found a list of the stock owned by the department and located at the different yards and pits.

In conclusion I wish to express my appreciation of the cordial treatment and assistance given me by his Honor the Mayor, and the members of the Joint Standing Committee on Highways, also to the members of the City Council for encouragement and approval. I would also cordially thank the several Assistant Superintendents and Foremen for the interest taken in the work and their prompt co-operation with me. I would remember the heads of the different departments for their courtesy and assistance given me.

Respectfully submitted,

CHARLES W. ROSS,

Superintendent of Streets.

Inventory of Property belonging to Highway Department.

36 Horses.	5 Double Carts.
39 Blankets.	24 Single Carts.
6 Rubber Covers.	1 Ash Cart.
2 Robes.	4 Stone Wagons.
8 Halters.	1 Express Wagon.
7 Double Harnesses.	3 Buggies.
23 Single Harnesses.	1 Sleigh.
14 Lead Harnesses.	1 Pung.
2 Wagon Harnesses.	2 Double sleds.
3 Buggy Harnesses.	8 Single Sleds.
29 Snow-plough Harnesses.	36 Snow-ploughs.
1 Tip Cart Saddle.	18 Gutter Ploughs.
3 Spreaders.	1 Large Plough.
11 Feed Bags.	11 Old Plough Points.
11 Brushes.	1 Stone Drag.
18 Mane Brushes.	1 Road Scraper.

15 Curry Combs.	1 Road Roller.
7 Barn Brooms.	1 Avelin and Porter Steam Roller.
3 Barn Pails.	1 Double Watering Cart.
2 Stall Hooks.	1 Single Watering Cart.
6 Manure Forks.	14 Wheelbarrows.
1 Manure Scraper.	3 Pair Old Wheels.
1 Hay Cutter.	2 Pair Hub Runners.
9 Hay Forks.	2 Wheel Jacks.
4 Pitch Forks.	6 Gravel Screens.
2 Pair Hay Hooks.	1 Sand Screen.
4 Pair Hay Blocks.	1 Farrel Foundry Stone Crusher.
2 Four Quart Measures.	1 Atlas Boiler & Engine.
1 Two Quart Measure.	2 Boilers.
2 Watering Pots.	1 Portable Stone Crusher.
28 Water Pails.	1 Portable Ames Boiler.
16 Galvanized Iron Pails.	1 No. 3 Rand Drill.
1 Wash Tub.	2 Blasting Batteries.
2 Tunnels.	34 Steel Drills.
1 Bushel Basket.	2 Tool-boxes for Engines & Drills.
2 Stoves.	10 Tool-Boxes.
242 Lanterns.	5 Tool Brands.
24 Lantern Burners.	450 feet Rubber Hose, 1 in.
1 1-2 Barrel Lantern Globes.	50 " " " 3-4 in.
4 Paint Brushes.	25 " Steam Hose.
1 25-foot Ladder.	200 " Cotton Hose 2 1-2 in.
1 Pair Howe's Scales.	150 " Old Cotton Hose.
5 Steam Roller Signs.	270 lbs. Old Rope.
19 Wooden Horses.	200 feet 3-4 inch Rope.
3 Old Mortar Beds.	450 " 3-4 inch Steel Rope.
6 Pair Rubber Boots.	1 Chain Rope.
4 Bars Soap.	1 Switch Rope for Steam-Roller.

11 5-foot 1-4 inch chains.	5 Old Wooden Blocks.
1 12-foot 1-2 inch chain.	2 Steel Blocks.
8 20-foot 5-8 inch chains.	3 Sets Block & Tackle.
1 15-foot 3-4 inch chain.	400 feet Leading Wire.
2 Four shive iron blocks.	20 lbs. Connecting Wire.
3 16-inch iron blocks.	2 Dump Cars.
205 Picks.	2 Caps for driving planks.
109 Pick Handles.	10 Seythes.
283 Short, Square Shovels.	3 Sickles.
119 Short Round Shovels.	1 Sod Cutter.
13 Long Square Shovels.	1 Lawn Mower.
7 Long Round Shovels.	25 Grass Hooks.
34 Snow Shovels.	13 Tree Scrapers.
10 Spades.	19 Paving Scrapers.
26 Catch-basin Scoops.	1 Splitting saw.
9 Catch-basin Scoop Handles.	6 Cross-cut saws.
95 Hoes.	1 Panel saw.
75 Prong-hoes.	6 Hand-saws.
45 Grub-hoes.	5 Spirit Levels.
13 Street Hoes.	2 Bit Stocks and Bits.
91 Wooden Rakes.	1 Set Pipe cutting tools.
46 Iron Rakes.	1 3-4-inch Augur.
13 Coarse Gravel Rakes.	3 Trowels.
11 Fine “ “	2 Squares.
61 Stone Picking Forks.	3 Straight Edges.
13 Post-hole Tampers.	3 Grindstones.
12 Paving Tampers.	6 Iron Paving Stakes.
15 Trench “	4 Sets Sighting Stakes.
1 Curbing Tamper.	5 Stillson Wrenches.
1 Packing Bar.	3 Monkey “
50 Crow-bars.	28 Cord Lines.
4 Mauls.	3 Diaphragm Pumps.
47 Sledge Hammers.	3 Suction Hose.
10 Striking Hammers.	1 Boom Derrick complete.
2 Bracing “	1 Derrick, mast and boom.

2 Paving Hammers,	1 Derrick box.
6 Claw Hammers.	2 " buckets.
23 Hammer Handles.	16 Iron Buckets.
19 Axes.	35 Steam Roller Picks.
3 Hand Axes.	2 Crusher Screens.
2 Grub Axes.	2 Tube cleaners.
3 Axe Handles.	3 Pokers.
2 Adze.	1 Shovel.
5 Wood Wedges.	1 Bracket for Crusher.
14 Stone Wedges.	6 Chills " "
3 Frost Wedges.	6 Shafts " "
1 Blacksmith Sledge Hammer.	1 Jack-screw.
1 Forge and Bellows.	2 Steam Gages.
1 Anvil.	6 Belt Lacings.
2 Vise.	75 Feet of Belting.

Inventory of Stock in Yard.

DRAIN PIPE.

SIZE.	CEMENT.	AKRON.	RING.
inch.		28 feet.	
6 "	58 feet.	8 "	
8 "	142 "	102 "	
9 "	20 "	6 "	
10 "	52 "	10 "	
12 "	8 "	46 "	
15 "	30 "	26 "	5 feet.
18 "	62 "		28 "
20 "		76 "	
20x15 " egg.	36 "		
15 " Y's	3		
15x8 " "	3		
8x6 " "	1		
9x6 " "	1		
20x8 " "		16	
12x8 " "		24	
8x6 " "		4	
8x8 " T's.	1		
12x12 " Y.	1		
8 1-4 " Bends.		102	
6 1-4 " "		6	

1,027 ft. Curbing, Straight. 2 bbls. Cement, Hoffman's.

27 " " Curved. 9,714 ft. Lumber.

11 " Corner Blocks. 57 Sign Posts.

3 Stones for Catch Basin 81 Fence Posts.

Covers.

14 Square Catch Basin Covers. 83 Bound Stones.

19 Concord " " " 16 4-in. Covering Stones.

12 Dome " " " 117.2 ft. 2-in. Crossing Stones.

6,200 Brick 2 3-in. Covering Stones.

1 1-2 bbls. Portland Cement.	14 linear feet of 3 ft. Centres.
1 Ton Stove Coal.	1 Cast Iron Sewer Trap & Manhole.
1 1-2 Tons Engine Coal.	1 Grate Portable Boiler.
2 bbls. Kerosene Oil.	360 lbs. Mineral Salt.
2 " Black "	36 Bags Rock Salt.
15 gals. Linseed Oil.	2 1-2 Bushels Salt.
10 gals. Cylinder Oil.	60 lbs. Babbit Metal.
25 lbs. Paint.	75 lbs. Zinc.
150 " Nails.	9 Steel Bars.
10 " Spikes.	21 Pieces Drill Steel.
1 45-gal. Oil Tank.	35 feet " "
1 10 " " Can.	12 Pieces Hand Drilled Steel.
6 5 " " "	9 ft. 1 3-4 in. Round Wedge Steel.
4 3 " " "	8 ft. 1 3-4 in. Square Wedge Steel.
1 2 " " "	150 feet Steam Pipe.
6 1 " " "	1 Oat Meal Firkin.
3 1-2 " " "	2 Kerosene bbls.

APPENDIX.

Ordinance Relating to Reports of City Officers.

*Be It Ordained by the City Council of the City of Newton,
as follows.*

SECTION 1. In addition to the reports now required by ordinance to be made annually to the City Council, annual reports to December 31st, shall be made as follows:

Assessors, giving their tables of aggregates, and such other information, as may, in their judgment, be deemed of public importance.

Board of Health, showing the business of the Board, with recommendations.

City Clerk, to include statement of number of marriage intentions, marriages solemnized, number of births and deaths, statement of fees, dogs licensed, enrolled militia, etc.

City Solicitor, showing the transactions of his department, including all suits or actions by or against the city, with amounts of payments and receipts on account of same.

Registrars of Voters, showing by precincts, the number of registered voters, including women, with changes since last reports, also number of votes cast for leading party candidates.

Superintendent of Streets, showing the transactions of the Highway Department, under direction of the Highway Surveyors and Committee on Highways, except as required of the City Engineer, and a schedule of the property of the city in his charge.

SECT. 2. All reports of heads of departments and boards of officers of the city, shall be presented to the City Council on or before the fifteenth day of February of each year.

SECT. 3. All City reports shall be printed in pamphlet form, of uniform size, and bound together annually under the direction of the City Clerk, in such number as may be directed by the City Council, one copy each of which shall be deposited in the Newton Free Library, the State Library, the Public Library of the City of Boston, the Massachusetts Historical Society, the Smithsonian Institute at Washington, D. C., and with the clerks of the cities and towns bordering on the City of Newton.

SECT. 4. All ordinances and parts of ordinances, inconsistent herewith, are hereby repealed.

Passed to be ordained and approved, February 16, 1891.

ORDINANCE XVI.

Ordinance Relating to the Superintendent of Streets.

HIGHWAY DEPARTMENT — STREETS AND WAYS.

SECTION 1. The office of Superintendent of Streets is hereby established.

SECT. 2. The Superintendent of Streets shall, under the direction of the Highway Surveyors, have the general care and charge of highways and streets, of sidewalks and bridges, and cause them to be kept in good repair. He shall see that all nuisances and obstructions are removed, or give notice thereof to the surveyors.

SECT. 3. Whenever any highway, street, sidewalk or bridge is unsafe for travel, he shall erect suitable fences to

prevent travel upon such parts thereof as are unsafe, and shall cause such places to be sufficiently lighted at night.

SECT. 5. Under the direction of the Joint Standing Committee on Highways, he shall have supervision of the public squares and parks, and of the making, widening, and altering of streets and ways, and the care of shade-trees therein. He shall have charge of the city teams and stables, other than those used by the fire department, and he shall make all necessary arrangements for cleaning the streets, disposing of manure and removing house dirt.

SECT. 6. Whenever, under the direction of the Committee on Highways, he shall sell any property of the city, or shall do, or cause to be done any work for an individual, for which any sum shall become due to the city, he shall enter in books, to be kept for that purpose, such sales, and all work done, with the price or just value thereof, and shall make out bills for the same, and deliver them to the Joint Standing Committee on Highways.

SECT. 7. The Superintendent shall, on the last day of every month, prepare a schedule of debts, for labor or material, contracted by him, and present such of them as are for repairs on streets and ways to the Highway Surveyors, and all others to the Joint Standing Committee on Highways for approval.

SECT. 9. No person, unless authorized by law, shall break or dig up any part of any street, square, or park, or common, without a written permit from a Highway Surveyor or the Superintendent of Streets.

SECT. 25. Any person who shall place snow or ice upon the street, except that removed from the sidewalk, shall cause the same to be spread evenly; and no snow or ice shall be thrown or put into a street, or upon a bridge, contrary to the orders of the Superintendent of Streets.

SECT. 26. The owner, tenant and occupant of any building or lot of land, abutting on any sidewalk built in

whole or in part by the city or by the town of Newton, shall after a fall of snow, without delay, cause the same to be removed from the sidewalk adjoining the premises. If they shall fail to do so, the Superintendent of streets shall cause the snow to be removed, and such owner, tenant and occupant, shall severally be held to pay the expenses of such removal, and in addition shall forfeit and pay a sum not less than one dollar nor more than ten dollars.

SECT. 29. No Street Railway shall receive a location in any of the streets of Newton, until the party or parties applying for the same, shall have first filed with the City Clerk, a plan of the location desired, and shall enter into an agreement in writing under their seals, with the City of Newton, whereby they agree to use the form of rail, the kind and quality of material for paving, and lay down their tracks, all as the Committee on Highways shall direct; said agreement shall also contain proper covenants, providing that the obligors shall, at their own expense, when ordered so to do by the Board of Aldermen, change in any street the location of their track or tracks, the grade of the same, and the pavement used by them, to conform to the grade and pavement of the street as the same may be established from time to time.

The following rules shall be observed by horse railroad corporations, their servants and agents, making use of the streets of the city :

1. No car shall be drawn at a greater rate of speed than seven miles an hour.

2. Cars drawn in the same direction shall be kept at least one hundred feet apart, except at stations, or in case of accident.

3. The conductors and drivers shall keep a vigilant watch for teams, carriages and persons, whether on the track

or moving in the direction thereof, and on the first appearance of danger, shall stop the car at once and take the best means of avoiding the peril.

4. Repairs upon such portions of the streets as said corporations are required to keep in repair shall be made under the direction of the Superintendent of Streets and to his acceptance.

5. Whenever the streets wherein the track is laid become in the judgment of the Committee on Highways, unsafe and inconvenient for travellers, by reason of accumulations of snow and ice between the track and sidewalk, the corporation using said track shall remove such snow and ice, when so directed by the Committee on Highways; and until the same is so removed after such notice the cars shall cease to run over such track.

Drain and Sewer Ordinance.

RELATING TO THE SUPERINTENDENT OF STREETS.

SECTION 2. All common sewers, ordered by the City Council to be made, shall be built and kept in repair, under the direction of the Joint Standing Committee on Sewers, and all drains so ordered, shall be built and kept in repair, under the direction of the Committee on Highways.

SECT. 3. The City Engineer shall, under the direction of the Committee on Sewers, have the general superintendence of all common sewers built or owned by the city, and of all connections of private sewers built under the provisions of this ordinance and the inspection thereof. He shall make plans and profiles of all main drains and common sewers built under the direction of the Committee on Highways and the Committee on Sewers, showing their location

with reference to other drains and sewers and the street lines, and showing the location of all private drains or private sewers entering them; which plans and profiles shall be filed in the office of the City Clerk, and after being so filed, shall be deposited in the office of the City Engineer, which shall be deemed a part of the office of the City Clerk, for the keeping of said plans.

SECT. 8. All applications for entering private drains into main drains shall be in such form as the Committee on Highways shall prescribe, and filed with the Superintendent of Streets. No person shall enter a private drain into any main drain without a permit from the said Committee on Highways, nor without first paying such sum as the Mayor and Aldermen shall determine for the privilege.

CITY OF NEWTON.

ANNUAL REPORT

OF

THE CITY MARSHAL

FOR THE YEAR ENDING DECEMBER 31, 1891.



NEWTON UPPER FALLS:
FANNING PRINTING CO.
1892.

CITY MARSHAL'S REPORT.

OFFICE OF CITY MARSHAL, }
WEST NEWTON, December, 31, 1891. }

*To His Honor the Mayor, and the City Council of the City
of Newton:*

I have the honor to submit for your consideration the
eighteenth Annual Report of the Newton Police Department
for the year ending Dec. 31, 1891.

Arrests.

Whole number of arrests	1,180
Arrests on warrants	226
Arrests without warrants	954
Held for trial	663
Discharged on examination	517
Males	1127
Females	53
Americans	474
Foreigners	706
Residents	910
Non-residents	270
Minors	124

Arrests at Each Police Station.

Station No. 1, Newton	267
Station No. 2, Nonantum	208
Station No. 3, West Newton	624
Station No. 4, Newton Centre	81
	<hr/>
	1180

Arrests Made Each Month.

	Males.	Females.	Total
January	36	1	37
February	41	3	44
March	50	7	57
April	54	2	56
May	129	4	133
June	80	5	85
July	143	4	147
August	147	8	155
September	137	12	149
October	106	1	107
November	117	3	120
December	87	3	90
	<hr/>	<hr/>	<hr/>
	1127	53	1180

Local Police Work.

Newton	267
Nonantum	208
Newtonville	123
West Newton	298
Auburndale	60
Lower Falls	18
Newton Centre	81
Newton Highlands	54

Upper Falls	52
Waban	19
	<hr/>
	1180

Offences for Which Arrests Were Made.

Attempt at larceny	13
Assault	2
Assault and battery	59
Assault with dangerous weapons	3
Assault on officer	10
Assault felonious	2
Breaking glass	6
Bastardy	3
Breaking and entering	6
Contempt of Court	4
Common drunkard	1
Cruelty to animals	7
Default warrants	2
Disturbing the peace	123
Defacing public property	1
Destroying personal property	6
Drunkenness	742
Disturbing public schools	3
Disorderly conduct	4
Fornication	1
Gaming on the Lord's Day	6
Indecent exposure	2
Insane	17
Keeping disorderly house	2
Larceny simple	32
Larceny felonious	2
Malicious mischief	1
Non-support of family	1
Obtaining money by false pretences	3

Profanity	7
Runaways	6
Stubborn children	3
Stealing a ride	3
Suspicious persons	1
Threatening bodily harm	1
Tramps	2
Trespass	3
Violation of city ordinance	55
Violation of dog law	1
Violation of liquor law	16
Violation of railroad law	12
Violation of the Lord's Day	4
Violation of the rules of health	1
Witnesses	1
	<hr/>
	1180

Females Were Arrested for the Following Offences.

Assault and battery	7
Breaking glass	1
Contempt of Court	1
Drunkenness	16
Disturbing the peace	8
Insane	7
Larceny simple	4
Runaways	1
Stubborn children	1
Violation of dog law	3
Violation of city ordinance	2
Violation of liquor law	2
	<hr/>
	53

Nativity of Prisoners.

Austria	1
Canada	65
China	3
England	57
Germany	8
Ireland	528
Italy	24
Russia	2
Scotland	14
Sweden	3
Turkey	1
United States	474
	<hr/>
	1180

Occupation and Calling of Persons Arrested.

Agents	4
Blacksmiths	14
Bolt-maker	1
Box-maker	1
Baggage-masters	2
Barbers	4
Butchers	4
Book-keepers	1
Brakemen	1
Bakers	2
Contractors	5
Carriage-makers	5
Coach-men	14
Carpenters	50
Clerks	18
Domestics	11
Druggist	1

Electricians	.	.	.	.	.	.	.	3
Engineers	.	.	.	.	.	.	.	9
Expressmen	.	.	.	.	.	.	.	4
Farmers	.	.	.	.	.	.	.	11
Fire-men	.	.	.	.	.	.	.	3
Gas-fitter	.	.	.	.	.	.	.	1
Gardeners	.	.	.	.	.	.	.	1
Housekeepers	.	.	.	.	.	.	.	45
Hostlers	.	.	.	.	.	.	.	18
Hack-drivers	.	.	.	.	.	.	.	2
Harness-makers	.	.	.	.	.	.	.	2
Jewellers	.	.	.	.	.	.	.	1
Junk-dealers	.	.	.	.	.	.	.	5
Laborers	.	.	.	.	.	.	.	561
Lathers	.	.	.	.	.	.	.	6
Laundry-men	.	.	.	.	.	.	.	3
Machinists	.	.	.	.	.	.	.	54
Marble-cutter	.	.	.	.	.	.	.	1
Masons	.	.	.	.	.	.	.	46
Moulders	.	.	.	.	.	.	.	12
Mill-hands	.	.	.	.	.	.	.	14
Printers	.	.	.	.	.	.	.	3
Paper-makers	.	.	.	.	.	.	.	3
Plumbers	.	.	.	.	.	.	.	13
Peddlers	.	.	.	.	.	.	.	20
Painters	.	.	.	.	.	.	.	53
Polishers	.	.	.	.	.	.	.	2
Steam-fitters	.	.	.	.	.	.	.	2
Stationers	.	.	.	.	.	.	.	1
Sailors	.	.	.	.	.	.	.	9
Sales-men	.	.	.	.	.	.	.	2
Shoe-makers	.	.	.	.	.	.	.	17
Scholars	.	.	.	.	.	.	.	33
Spinners	.	.	.	.	.	.	.	5
Slaters	.	.	.	.	.	.	.	4

Teamsters	54
Tailors	7
Teachers	1
Weavers	8
Watch-makers	2
Watchman	1
	<hr/>
	1180

Lodgers.

At Police Station No. 1	512
“ “ “ “ 2	89
“ “ “ “ 3	302
“ “ “ “ 4	182
	<hr/>
	1085
Foreigners	585
Number of lodgers in 1884	1502
“ “ “ “ 1885	1438
“ “ “ “ 1886	1199
“ “ “ “ 1887	950
“ “ “ “ 1888	1001
“ “ “ “ 1889	1042
“ “ “ “ 1890	1131

Nativity of Lodgers.

Arabia	1
Canada	18
England	63
France	1
Germany	11
Ireland	444
Italy	1
Norway	1
Poland	1

Russia	1
Scotland	42
Sweden	1
United States	500
	<hr/>
	1085

Reports Made by Patrolmen to City Marshal.

Accidents	55
Buildings found open and secured	74
Buildings erected	207
Cases investigated	280
Dangerous buildings	3
Defective streets	42
Defective side-walks	23
Defective water-pipes	14
Defective drains	5
Disturbances suppressed	91
Fire alarms	59
Fires extinguished without alarm	12
Intoxicated persons helped home	2
Lost children restored	7
Notices served by the department	4126
Street obstructions removed	5
Sick and injured persons assisted	24
Stray teams put up	24
Suicides	2

Miscellaneous Business.

Amount of property reported stolen in the city	\$685 25
Amount of property recovered	1,722 29
Court fees and fines, earned by officers, paid by Clerk of Police Court to City Treasurer	2,235 20

Amount of fines imposed by court . . .	2,314 00
Imprisonment imposed by court . . . 20 yrs. 9 mos. 10 ds.	
Number of search warrants for liquor served	21
Number of liquor seizures	14
Gallons of liquor seized	165
Number of search warrants for stolen property served	1

The following cases were reported to the Medical Examiner:

February 24.	Michael Bryson.	Natural causes.
March 18.	John Maloy.	Natural causes.
April 1.	George Hobbs.	Drowned in Charles River.
May 15.	Pio Margioto.	Killed by cars.
May 19.	Unknown child.	Found in Charles River.
June 25.	Edward Doherty.	Suicide.
July 5.	Mary E. Parker.	Accident.
July 14.	Patrick Scannell.	Drowned in Crystal Lake.
August 7.	George M. Shinn.	Suicide.
September 15.	Sarah Kesbie.	Natural causes.
November 22.	Bridget Murphy.	Natural causes.

Police Organization.

Charles F. Richardson, City Marshal.

Charles E. Davis, Captain, day duty at headquarters.

James D. Henthorne, Inspector.

Charles P. Huestis, Sergeant, night duty at headquarters.

*John Ryan, Sergeant, night duty at headquarters.

Charles T. Bartlett, Patrolman, night duty at Newton Centre.

Noah F. Bosworth, Patrolman, day duty at Newtonville.

William G. Bosworth, Patrolman, day duty at Auburndale.

Bernard F. Burke, Patrolman, night duty at Nonantum.

Robert W. Blue, Patrolman, night duty at Chestnut Hill.

Thomas C. Clay, Patrolman, night duty at Newtonville.
John W. Conroy, Patrolman, night duty at Nonantum.
Richard B. Conroy, Patrolman, night duty at Newton.
Charles O. Davis, Patrolman, day duty at Nonantum.
John J. Davis, Patrolman, night duty at West Newton.
John E. Dugan, Patrolman, night duty at Newton Highlands.
Frank B. Fletcher, Patrolman, day duty at Newton Centre.
Ambrose M. Fuller, Patrolman, night duty at Newton Centre.
Robert S. Harrison, Patrolman, day duty at Newton.
Edson C. Holmes, Driver of patrol wagon.
William O. Harlow, Patrolman, night duty at Auburndale.
†A. F. A. G. Libby, Patrolman, detailed on wagon.
William A. Leonard, Patrolman, night duty at Upper Falls.
Rufus H. Moulton, Patrolman, day duty at Upper Falls and
Newton Highlands.
Frederick M. Mitchell, Patrolman, night duty at Waban.
Martin J. Nagle, Patrolman, night duty at Newton.
John Purcill, Patrolman, day duty at West Newton.
John W. Quilty, Patrolman, night duty at Auburndale.
William P. Soule, Patrolman, night duty at Newtonville.
Guy S. Shannon, Patrolman, night duty at West Newton.
Joshua H. Seaver, Patrolman, night duty at Lower Falls.
Richard T. Taffe, Patrolman, night duty at Newton.

*Promoted Sergeant June 22, 1891.

†Resigned October 6, 1891.

Street Lamp Lighting.

At this date there are seventy-nine (79) electric arc lights, eight hundred and three (803) gas lights, one hundred and seventy-three (173) oil lights, four hundred and forty (440) electric incandescent lights, used for street lighting, a total of fourteen hundred and ninety-five (1495) lights.

The regular lighting of the street lamps for the year 1892, as lighted by the moon schedule, will be as follows, both dates included:—

First lighting, January 14 to February 2.

Second lighting, February 13 to March 3.
 Third lighting, March 14 to April 1.
 Fourth lighting, April 13 to April 30.
 Fifth lighting, May 12 to May 30.
 Sixth lighting, June 11 to June 30.
 Seventh lighting, July 11 to July 30.
 Eighth lighting, August 10 to August 29.
 Ninth lighting, September 8 to September 27.
 Tenth lighting, October 8 to October 27.
 Eleventh lighting, November 6 to November 25.
 Twelfth lighting, December 5 to December 24.

Appropriation for police department for 1891	\$37,025 00
Amount expended	37,026 68
Balance overdrawn	\$1 68
Amount expended	\$37,026 68
Fees and fines paid by Clerk of Court to City	
Treasurer	2,235 20
Total expense for the department	\$34,791 48

Station Houses.

The several police stations and patrol stable are all in good condition, also the property belonging to this department. The much needed padded cell for insane persons has been added at police headquarters, and those unfortunate persons who now come under our protection can have that degree of safety and comfort long demanded by every principle of humanity.

Police Signal System.

The police signal system continues to act as an effective agent of this department, and during the year the patrol wagon has brought to police headquarters 750 prisoners, making 638 runs, and covering a distance of 2049 miles.

A table showing the gradual growth of the police department and the increase of its business during the past eleven years:

YEAR	Officers on Force.	Number of Arrests.	Amount Expended for Police Department.	Court Fees Earned.	Balance un-expended.
1881 . . .	16	402	\$16,930.96	\$808.00	\$69.04
1882 . . .	16	410	17,558.39	957.62	*58.38
1883 . . .	16	408	17,119.57	780.32	500.43
1884 . . .	16	462	17,752.52	820.50	72.48
1885 . . .	18	485	19,498.17	702.62	1.83
1886 . . .	20	528	21,591.46	674.16	2.54
1887 . . .	22	574	23,344.85	1,119.81	5.15
1888 . . .	23	630	24,594.94	1,321.00	105.06
1889 . . .	24	709	26,663.44	1,557.00	6,531.56
1890 . . .	32	830	41,175.74	2,146.17	1,334.26
1891 . . .	32	1180	37,026.68	2,235.20	*1.68

* Overdrawn.

Police Signal Stations.

CIRCUIT STATIONS.

I.	{	46	Winter Street.
		51	Oak and Chestnut Streets.
		53	Walnut and Lincoln Streets.
		54	Beacon and Walnut Streets.
II.	{	34	Valentine and Highland Streets.
		61	Beacon and Hammond Streets.
		62	Beacon and Centre Streets.
		65	Station Street and Glen Avenue.
III.	{	13	Washington Street, opposite Adams Street.
		14	Centre Street, at B. & A. R. R.
		16	Chapel and Watertown Streets.
		21	Walnut and Washington Streets.
		72	Centre and Sargent Streets.
		74	Church Street and Waverly Avenue.

- IV. { 23 River Street.
25 Derby and Waltham Streets.
32 Washington Street, opposite Auburn Street.
36 Auburn Street, at B. & A. R. R.
41 Washington Street and Woodland Avenue.
43 Washington and Grove Streets.

Conclusion.

To His Honor the Mayor, the Police Committee, the members of this department, and all others who have aided in enforcing the laws and ordinances of the city in the maintenance of good order, I wish to express my honest gratitude.

Respectfully submitted,

CHARLES F. RICHARDSON,

City Marshal.

CITY OF NEWTON.

ANNUAL REPORT OF THE TRUSTEES

OF THE

NEWTON FREE LIBRARY,

NEWTON MASS.,

FOR THE YEAR ENDING DECEMBER 31, 1891.



NEWTON UPPER FALLS:
FANNING PRINTING CO.
1892.

BOARD OF TRUSTEES, 1892.

At Large.

EDWIN B. HASKELL.

WILLIAM CLAFLIN.

JULIUS L. CLARKE.

A. LAWRENCE EDMANDS.

JOSEPH R. LEESON.

From the Board of Aldermen.

GEORGE F. CHURCHILL.

From the Common Council.

HENRY E. BOTHFELD.

ORGANIZATION FOR THE YEAR 1892.

President.

EDWIN B. HASKELL.

Secretary.

JULIUS L. CLARKE.

Committee on Library.

PRESIDENT, *ex-officio*.

JOSEPH R. LEESON.

WILLIAM CLAFLIN.

JULIUS L. CLARKE.

Committee on Building.

PRESIDENT, *ex-officio*.

GEORGE F. CHURCHILL.

A. LAWRENCE EDMANDS.

HENRY E. BOTHFELD.

Superintendent.

JOHN C. KENNEDY.

Librarian.

ELIZABETH P. THURSTON.

Assistant Librarians.

LOUISE STUART.

LOUISE J. SMALLWOOD.

KATHARINE K. WOOD.

ETTA P. CLEAVELAND.

CHARLOTTE A. FLANDERS.

CLARA R. DENNEN.

Janitor.

HENRY J. MARSHMAN.

REPORT OF THE TRUSTEES.

*To His Honor the Mayor and the City Council of Newton,
Massachusetts:*

The Trustees of the Newton Free Library are pleased to be able to report the continued and increasing usefulness of the institution under their charge. The year has been one of efficient management and steady growth. New fields of service have been opened, the opportunities for the public to use the Library have been increased, and the liberality of the city government, supplemented by the income of endowment funds, has enabled us to increase the stock of books as rapidly as is desirable.

The report of the Superintendent and the tables prepared by the Librarian, herewith submitted, give the details of the work for the year. From these it appears that the total number of volumes delivered during the year for home use was 105,988, of which a few more than one half were sent out through the village agencies. The number delivered to the several schools of the city was 6,635. The total number of names registered for taking books is now 10,615. Something over two thousand volumes have been added to the Library during the year, and the total number of volumes now in the Library is 34,730. On the average each book in the Library is taken out three times during the year, and as most books taken out are read by more than one person, it is evident that our books are finding their true usefulness. This might be increased, however, by a still more rapid circulation, and it is desirable that our citizens

should have a more lively sense of the treasures at their command. The time should quickly come when every village shall have a well appointed reading room in connection with the Library agency, where every advantage of the central building, with the exception of expensive books of reference, can be enjoyed. This would undoubtedly tend to a larger use of the Library books.

Among the valuable books of reference added to the Library during the year are Larousse's *Grand Dictionnaire Universel du XIX^e Siecle*, 17 volumes; the concluding volumes of the Century Dictionary; Sargent's *Silva of North America*, a work of special value; Walker's *International Atlas*; the new *Atlas of Massachusetts*; and the *Inconographic Encyclopædia*.

Among the gifts received by the Library were an excellent copy of the celebrated Macklin Bible, ten volumes, large folio, richly illustrated with engravings from the most eminent English Artists, presented by Mr. Lewis H. Farlow. This is a rare treasure, worthy of the attention of every lover of beautiful specimens of the book-maker's art. The Library received several other valuable gifts during the year.

The work of fitting the Library building for electric lighting, for which we asked an appropriation last year, was carried through early in the summer, and the new light is a great convenience as well as a safeguard against fire. It is doubtful whether it will save any expense, but if it costs no more than gas the change will be amply justified.

A very important work of the year has been the publication of a new catalogue of the Library, prepared on what is known as the Dictionary plan, which is found to be the most convenient for practical use. The preparation of the copy for this volume of nearly seven hundred large octavo pages and the reading of the proof, entailed a great deal of hard work for the Librarian and her first assistant, as it was done without the employment of extra help. The volume

was printed in a workmanlike manner by the Newton Journal Job Office. We asked for and received an appropriation of \$2,700 to do this work, and were able to turn back into the city treasury \$444.04 of that sum. We can report that the work was done well and economically.

From the beginning of the year 1892, the Library is to be kept open continuously from 10 A. M. to 8 P. M., thus doing away with the intermission from 12 to 2, which has been the rule hitherto.

A new agency is to be established at Waban, beginning with the New Year, with tri-weekly service of books from the Library.

It has been found necessary to employ one additional assistant Librarian.

The amount expended from the several endowment funds for the year was as follows:

From the Jewett Art Fund	\$184 75
From the Alden Speare Fund	64 25
From the Charles Read Fund	653 15
From the Farlow Reference Fund	405 17

Respectfully submitted by the Board of Trustees.

EDWIN B. HASKELL,

President.

REPORT OF SUPERINTENDENT.

To the Board of Trustees of the Newton Free Library:

GENTLEMEN :—The appropriation asked by the trustees for the Library for the last year was \$11,280.00, in connection with a carefully revised schedule of expenses, and a special appropriation of \$2,700 for a new catalogue, and I am happy to state that the entire sum asked for was generously granted by the City Council.

The work of the Library during the past year has been one of unusual activity. Early in the season the entire building was wired and equipped with Incandescent Electric lights which we find to be a great improvement over gas. The air through the Library is very much better, especially so during the warm weather. The circulation for the year has been 105,988 volumes. The largest number of books delivered at the Library on any one day was 750 on March 7th, which is forty-eight in excess of any previous day since the opening of the Library.

The Library while increasing in size, is also growing ^{*}towards a still greater degree of usefulness, if we may judge from its use and the deep interest taken by a large number of citizens.

To meet the demand of a large and growing section of the city, we have found it necessary to open another agency at Waban. During the year there has been an increase in the number of books delivered at the different school houses throughout the city. The teachers and scholars alike unite in hearty commendation of the great advantages to them of

the Library through the delivery system. 6,635 volumes were delivered at the schools during the past year.

The Library is now open every secular day, with the exception of legal holidays, from 10 A. M., until 8 P. M., and the Reading Room from 8 A. M., until 9 P. M. The number of volumes in the Library December 31, 1891, was 34,730. The number added during the year was 2,117. The delivery system which is now recognized as an essential means of making the Library useful, retains its strong hold upon the community. During the past year 53,883 volumes have been delivered at the agencies throughout the different parts of the city. The number of books covered during the year was 14,208. Amount of money received from fines and bulletins was \$416.99.

Some changes have been made in the Library force during the year. In the middle of the year Miss M. Ella Chase retired from the position of assistant. Her place has since been supplied by Miss Louise Stuart of Newton, a lady of fine education, well read, of literary tastes and fond of labor among books. Into her hands falls much of the work of completing the card catalogue. The work of the Library is constantly increasing, and it was deemed advisable to add another assistant to the staff in Edmands Hall, and Miss Clara R. Dennen of West Newton has been appointed to that position. Miss Dennen has been connected with the Library for some time, and is thoroughly conversant with the duties required and is in every way well qualified to fill the position.

A long felt want has been supplied in the new and handsome Catalogue just published. It was printed at the Newton Journal Office, Newton, where great pains was taken with it. A new and very clear type was used and the result is a very satisfactory volume, containing nearly seven hundred pages. The work registered over 34,000 volumes, and is throughout a most admirable specimen of

typography. To Miss Elizabeth P. Thurston, our faithful and accomplished Librarian, and her efficient assistant, Miss Louise Stuart, especially, is due the grateful acknowledgement of the trustees and patrons of the Library for their skilful and painstaking efforts in the long and tedious work of compiling this large volume. Only those familiar with statistical work or with the peculiar duties of compilation that form a large part of such labor can fully appreciate the care necessary to accomplish perfect results.

We are indebted to several prominent citizens of Newton for many valuable gifts to the Library, among which was a fine picture of the Massachusetts Senate of 1891, from Senator Gorham D. Gilman; from Lewis H. Farlow, a Bible in nine large folio volumes very fully illustrated.

We have been placed in such good condition during the year that our material wants for the year to come will be small outside of the expense of the regular administration of the Library. Our Public Documents, through the politeness of our representatives in Congress and of our State legislative representatives and authorities, have increased so rapidly that additional shelf room has been put into Read Hall.

In the Appendix, detailed statistical tables are given, which present the comparative work and condition of the Library, and its results during the past year.

Respectfully submitted,

JOHN C. KENNEDY, *Superintendent.*

APPENDIX.

A.

RECEIPTS.	1891.	1890.	1889.
Municipal appropriation . . .	\$11,280 00	\$10,495 00	\$10,295 00
Special appropriation for catalogue	2,700 00	..	..
Fines, bulletins, etc.	416 99	468 46	418 38
Cash on hand at last report . .	..	41 79	5 64
	\$14,396 99	\$11,005 25	\$10,719 02

B.

EXPENDITURES.	1891.	1890.	1889.
Salaries	\$4,396 42	\$4,186 51	\$4,042 15
Reading Room	497 90	539 51	504 60
Incidentals	132 41	236 93	169 76
Repairs	31 34	212 49	11 80
Furniture and fixtures	107 25	11 10	63 29
Fixtures and wiring for electric lighting	861 73		
Printing catalogue	2,255 96		
Printing and advertising . . .	117 40	37 00	36 75
Binding	306 25	434 33	380 05
Books	2,428 12	2,821 95	3,061 49
Light	649 21	653 60	569 40
Fuel	266 59	301 39	288 40
Distributing agencies and express	1,739 98	1,467 40	1,425 21
Blanks and stationery	120 41	84 71	102 72
Postage account	24 50	18 33	21 50
Total expenditure	\$13,935 47	\$11,005 25	\$10,677 12
Bal. with City Treasurer, \$ 0 16			
Balance at the Library, 17 32			
Total balance	17 48	0 00	41 90
Bal. of special catalogue appropriation of \$2,700 with City Treasurer, not expended . .	444 04		
	\$14,396 99	\$11,005 25	\$10,719 02

C.

CIRCULATION.	1891.	1890.	1889.
Number of days the Library was open	305	305	304
Number of holidays the Library was closed	8	8	9
Number of other week-days the Library was closed . . . . .	..	..	..
Number of volumes delivered for home use	105,988	110,627	105,230
Average daily use	347	362	346
Largest daily use, Mar. 7, 1891.	750	..	..
Feb. 24, 1890. . . . .	..	708	..
Feb. 23, 1889. . . . .	..	..	680
Smallest daily use, Aug. 20, 1891.	180	..	..
Aug. 12, 1890. . . . .	..	23	..
July 25, 1889. . . . .	..	..	187
Number of books lost and not paid for	13	6	15
Number of books lost and paid for	8	5	2
Number of books worn out and withdrawn	46	129	50
Number of notices to delinquents	228	169	177
Number of volumes covered	14,204	13,449	12,508
Number of volumes bound	756	1,117	884
Number of names registered during the year	911	931	1,026
Total number of names registered	10,615	9,704	8,773

D.

DISTRIBUTION THROUGH THE AGENCIES AND TO THE SCHOOLS.	1891.
Books distributed at Newtonville Newton Centre Newton Highlands Auburndale West Newton Newton Upper Falls Newton Lower Falls Nonantum Oak Hill	14,241 12,424 8,114 6,991 5,451 2,938 2,371 924 429
Total agency distribution	53,883
Books delivered to the Public Schools. to Underwood Prospect Mason Eliot Adams Bigelow Hyde Williams High Claflin Lincoln Pierce Rice	1,001 722 699 681 611 520 515 501 474 419 219 143 130
Total number of books delivered for school use . . .	6,635

E.

ACCESSIONS.	1891.	1890.	1889.
Increase by purchase . . .	1,884	1,838	2,050
by gift . . .	180	123	128
by binding pamphlets .	3	15	8
by binding periodicals .	117	143	136
Number of missing volumes re- stored since last report . .	..	1	1
Total accessions for the year	2,184	2,120	2,323
Number of volumes missing or withdrawn since last report .	67	129	67
Actual increase	2,117	1,991	2,256
Number of volumes in the Li- brary, as last reported . . .	32,613	30,622	28,366
Total number of volumes in the Library	34,730	32,613	30,622
Number of pamphlets bound since last report	8	37	32
Number of newspapers sub- scribed for	35	35	34
of newspapers given . . .	7	8	9
of magazines subscribed for	81	79	79
of magazines given . . .	10	11	11
Total number received . .	133	133	133

F.

CLASSIFICATION, GROWTH, SIZE AND USE.	Increase during the Year.	Total Number of Volumes.	Volumes issued during the Year.	Per Cent of Circulation.		
				1891.	1890.	1889.
<i>Literature.</i>						
Prose fiction	295	6,986	65,516	61.81	61.84	64.11
Essays, poetry and drama . .	250	4,226	7,862	7.42	7.41	6.79
Periodicals	158	2,661	3,568	3.37	3.23	3.05
Foreign literature	52	801	563	.53	.46	.58
<i>History.</i>						
Geography and travels	169	3,132	8,484	8.01	8.47	8.20
Biography	214	3,316	4,897	4.62	4.89	4.40
History	174	3,126	5,960	5.62	5.15	4.81
<i>Arts and Sciences.</i>						
Natural science and industrial arts	334	3,604	7,125	6.72	6.72	6.03
Political and social science . .	168	1,847	1,216	1.15	1.08	1.26
Theology and ethics	47	1,384	756	.71	.73	.73
Reference books	256	3,647	41	.04	.02	.04
Accessions for the year	2,117					
Number of volumes in the Library . . . . .	..	34,730	..	..	..	..
Circulation for the year . . . .	..	..	105,988	..	..	..

G.

Received for catalogues sold in 1891	\$1.00
Paid City Treasurer	1.00

LIST OF PERIODICALS FOR 1892 IN THE READING ROOM.

MAGAZINES.

- | | |
|-----------------------------|--------------------------------|
| All the Year Round. | Edinburgh Review. |
| American Agriculturist. | Education. |
| American Architect. | Electrical Engineer. |
| American Gardening. | Engineering and Building News. |
| American Naturalist. | English Illustrated Magazine. |
| American Notes and Queries. | Folio* |
| American Philatelist. | Fortnightly. |
| Andover Review. | Forum. |
| Appalachia. | Garden and Forest. |
| Arena. | Gardener's Chronicle. |
| Art Amateur. | Good Housekeeping. |
| Art Interchange. | Harper's Monthly. |
| Atlantic Monthly. | Haus und Herd. |
| Bibliotheca Sacra. | Home-Maker. |
| Blackwood's Magazine. | Illustrated London News. |
| Boston Musical Herald. | Lend a Hand. |
| Cassell's Family Magazine. | Library Journal. |
| Catholic World. | Life. |
| Century. | Lippincott's Magazine. |
| Chamber's Journal. | Literary News. |
| Chatauquan. | Literary World. |
| Civil Service Record.* | Littell. |
| Common School Education. | London Punch. |
| Contemporary Review. | Macmillan's Magazine. |
| Converted Catholic.* | Magazine of American History. |
| Cosmopolitan. | Magazine of Art, |
| Country Gentleman. | Medical Bulletin.* |
| Critic. | Nation. |
| Decorator and Furnisher. | National Magazine, |

Nature.	Publishers' Weekly.
New Eng. Hist. and Gen. Reg.	Puck.
New Eng. Journal of Education.	Quarterly Journal of Economics.
New England Magazine.	Quarterly Review.
New Englander and Yale Rev.	Reviews of Reviews.
Nineteenth Century.	St. Nicholas.
North American Review.	Sanitarian.
Notes and Queries.	Science.
Official Gazette, U. S. Pat. Office.*	Scientific American.
Open Court.*	Scientific American Supplement.
Our Dumb Animals.*	Scribner's Magazine.
Outing.	Traveler's Record.*
Outlook.	United States Magazine.
Overland.	Westminster Review.
Philanthropist.*	Wide Awake.
Political Science Quarterly.	Writer.
Popular Science Monthly.	Youth's Companion.
Public Opinion.	

NEWSPAPERS.

Atlanta Constitution.	Independent.
Boston Advertiser.	London Times.
Boston Commercial Bulletin.	Montreal Gazette.
Boston Globe.	New Orleans Picayune.
Boston Herald. Evening Edition.	New York Evening Post.
Boston Herald. Morning Edition.	New York Herald.
Boston Post.	New York Times.
Boston Transcript.	New York Tribune.
British American Citizen.†	New York World.
Brooklyn Eagle.	Newton Graphic.
Charleston News and Courier	Newton Journal.
Chicago Tribune.	Philadelphia Press.
Christian Leader.†	St. Louis Globe Democrat.
Christian Register.†	San Francisco Chronicle.
Cincinnati Commercial.	Saturday Evening Gazette.
Colorado Sun.	Springfield Republican.
Florida Times Union.	Washington Post.
Harper's Bazar	Woman's Journal.†
Harper's Weekly.	Zion's Herald.

* Represents magazines given.

† Represents newspapers given.

CITY OF NEWTON.

ANNUAL REPORT

OF THE

OVERSEERS OF THE POOR,

FOR THE YEAR ENDING DECEMBER 31, 1891.



NEWTON UPPER FALLS:
FANNING PRINTING CO.
1892.

BOARD OF OVERSEERS OF THE POOR, 1891.

HIS HONOR HERMON E. HIBBARD, *Chairman ex-officio.*

Ward One.

WILLIE M. RUSSELL.

Ward Two.

JOHN F. PAYNE.

Ward Three.

ANDREW J. FISKE.

Ward Four.

NATHAN MOSMAN.

Ward Five.

EUGENE FANNING.

Ward Six.

GEORGE WARREN.

Ward Seven.

HENRY C. DANIELS.

Committee on Almshouse.

HENRY C. DANIELS.

EUGENE FANNING.

NATHAN MOSMAN.

City Almoner, and Clerk of the Board.

NATHAN MOSMAN.

Warden of Almshouse.

NATHANIEL D. MOODY.

Matron of Almshouse.

MRS. ELIZA A. MOODY.

City Almshouse, Beacon Street.

At the regular meeting of the Board of Overseers of the Poor held this day the annual report, as prepared by the Clerk, (for 1891,) was accepted by the Board, and the Clerk was instructed to present the same to the City Council.

NATHAN MOSMAN, *Clerk*.

WEST NEWTON, Feb. 4, 1892.

REPORT OF THE OVERSEERS OF THE POOR.

*To His Honor the Mayor and the City Council of the City of
Newton:*

GENTLEMEN:—The expenses of the department have been greater than in the previous year and naturally show a tendency in that direction year by year.

The report shows a considerable advance in the number of families and of persons who have applied for and received aid, over the number aided in 1890. The ratio of increase has been larger in the Newton Cottage Hospital than outside.

The applications which come to the department cannot be dealt with by a free hand, but with the closest scrutiny, and in many cases with extreme conservatism. Otherwise, public aid would become the pauper evil and crowd upon us with a constant increase.

The whole number of families receiving temporary aid, out of almshouse, including the Newton Cottage Hospital patients, during any part of the year has been	221
Whole number of persons	502
Having settlement in Newton	275
Having settlement in other cities and towns in the State	71
Aided in other cities and towns and chargeable to Newton	74

Having no settlement and chargeable to the State	. 156
Of the whole number there were males	. . . 219
females	. . . . . 283
Under sixteen years of age	. . . . . 191

Of persons having full support out of Almshouse during any part of the year, there were at the State Alms- house, Tewksbury	. . . . . 2
Westboro Insane Hospital	. . . . . 6
Worcester Insane Asylum	. . . . . 5
Worcester Lunatic Hospital	. . . . . 6
Placed in a family	. . . . . 1
Whole number of insane supported	. . . . . 20
Number supported at present	. . . . . 16

The number of patients at the Newton Cottage Hospital provided for at the expense of the city has increased each year.

In 1889 the number was	. . . . . 27
“ 1890 “ “	. . . . . 39
“ 1891 “ “	. . . . . 75

A large majority of these were persons having no settlement and were chargeable to the State.

The amount appropriated by the City Council
for Poor out of Almshouse
was \$9,000 00

Transferred from Almshouse expense
and repairs 700 00

Total appropriation	. . . . . \$9,700 00
Total expenditure	. . . . . 9,894 67

Appropriation overdrawn \$194 67

Accompanying tables show expenditures and receipts in detail.

Expenditures for the Year 1891.—Poor out of Almshouse.

MONTH.	Cash.	Groceries.	Fuel.	Clothing.	Board.	Medical Attendance.	Medicine.	Burials.	Tramps.	Commonwealth of Massachusetts.	Insane.	Other Towns.	Salaries.	Total.
January . .	..	\$237 02	\$164 59	\$15 30	\$107 86	\$47 00	22 94	..	..	\$104 71	..	\$390 94	\$100 00	\$1,190 36
February .	\$15 77	216 18	118 03	9 73	149 26	34 50	7 13	..	..	..	..	19 75	100 00	670 75
March . .	8 32	229 36	109 69	15 50	135 26	23 00	15 41	..	..	..	465 60	106 55	100 00	1,208 69
April . .	17 93	104 80	65 45	20 10	107 76	11 00	19 05	\$15 00	..	48 00	..	64 55	100 00	573 64
May . . .	7 10	166 93	17 70	..	..	6 00	..	29 00	..	..	..	..	100 00	326 73
June . . .	18 14	108 53	19 00	..	42 21	21 50	1 35	..	..	..	292 04	4 20	100 00	606 97
July . . .	6 50	185 04	24 59	5 70	217 88	25 50	15 70	25 50	..	156 66	211 25	209 39	100 00	1,183 71
August . .	17 80	98 03	22 76	..	41 17	7 50	12 75	26 50	..	..	..	11 00	100 00	337 51
September .	12 85	101 19	19 33	..	95 02	16 00	..	45 00	..	..	427 13	93 58	100 00	910 10
October . .	29 44	172 77	99 73	..	77 75	51 50	18 47	..	Included in Groceries.	66 05	..	58 02	100 00	673 73
November .	10 31	145 69	64 27	7 95	82 28	12 50	8 25	77 00	..	..	..	..	100 00	508 25
December .	10 80	127 00	85 99	..	54 03	56 50	17 75	25 00	..	..	825 75	48 81	450 00	1,704 63
Total . .	\$154 96	\$1,892 54	\$811 13	\$74 28	\$1,110 48	\$312 50	\$138 80	\$243 00	\$15 96	\$375 42	\$2,244 77	\$1,006 79	\$1,550 00	\$9,894 67

Receipts from Various Sources.

Commonwealth of Massachusetts	\$901 99
City of Boston	88 33
City of Chelsea	204 36
City of Somerville	13 00
City of Waltham	81 86
Town of Blackstone	42 30
Town of Clinton	14 00
Town of Concord	29 25
Town of Dedham	72 00
Town of Hull	70 00
Town of Natick	54 45
Town of Plymouth	43 83
Town of Watertown	87 94
Guardians and relatives	126 76

Total receipts for Poor out of Almshouse . . \$1,829 87

With the constantly increasing efforts year by year in our communities to curb the growth of pauperism, there comes also the feeling of personal responsibility for our needy neighbor, and the desire to do what we may and in the best manner to help him up to independence of public aid and as far as possible of private aid also. Doubtless the best help which can be given is work whereby the able bodied may earn their bread and ask it of no man.

No provision has yet been made by the city for orphan children and those equally destitute, having parents but no home worthy of the name. The only way open for them at present is adoption in new homes. The time may not be far away when wisdom and true economy will call for a house with presiding matron, where children suffering this destitution may be provided for and educated to something higher than permanent pauperism.

Almshouse Department.

The Almshouse with ordinary repairs would be in all respects comfortable and equal to probable demands that may be made upon it for an indefinite future. General repairs have been neglected for two or three years until the appearance of the buildings within and without is not creditable to the department or the city. This condition of affairs could be with moderate expense quickly remedied.

Under the present policy the number of inmates has been kept low. Once settled in the Almshouse, a person is likely to remain permanently, never again rising to the dignity of self-support. Bridge over a season of misfortune by temporary aid and the recipient is not heard from again for years, perhaps never.

The work of the Almshouse Department has been carried on at a partial disadvantage by reason of the unsettled condition of the Almshouse question. The land purchased by the city on Winchester street and cultivated as a part of the farm, is two and one-half miles from the Almshouse. It may be a question whether any elaborate cultivation of this land is a profitable investment of labor.

The number of persons supported at the Almshouse for all or any part of the year has been thirty; the present number is twenty-two; the average number for the year, twenty-three. One death has occurred among the inmates.

The amount appropriated by the City Council for

Almshouse Expense and Repairs was	.	\$4,500	00
Transferred to Poor out of Almshouse	.	700	00
Total appropriation for Almshouse	.	3,800	00
Amount expended	.	3,913	20
Amount overdrawn	.	113	20
Amount received for board, sale of produce, wood,			
etc.,	:	1,181	36
Almshouse expense and repairs, net	.	2,731	84

The total appropriation for the Poor Department

for the year was	\$13,500 00
Total expenditures	13,807 87
Total receipts	3,011 16
Total expense, net	10,796 71
Amount overdrawn	307 81

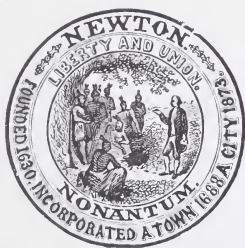
A valuable pair of young horses has been added to the equipment of the farm. Two horses, too old to be kept in the service of the farm, have been sold. The stock and tools are in good condition and improved from last year.

Respectfully submitted,

For the Overseers of the Poor,

NATHAN MOSMAN, *Clerk.*

ANNUAL REPORT
OF THE
SCHOOL COMMITTEE
OF THE
CITY OF NEWTON.
1891.
VOLUME LII.



NEWTON UPPER FALLS:
FANNING PRINTING CO.
1892.

ORGANIZATION OF THE SCHOOL COMMITTEE.

JANUARY 1891.

HON. HERMON E. HIBBARD, MAYOR, CHAIRMAN, *ex officio*.

GEORGE A. MEAD, PRESIDENT COMMON COUNCIL, *ex officio*.

J. EDWARD HOLLIS, CHAIRMAN.

MARY E. SHERWOOD, SECRETARY.

JOSEPH C. JONES, SUPERINTENDENT.

ELECTED MEMBERS.	TERM OF OFFICE	
	WARDS.	EXPIRES.
CHARLES A. DREW	I.	January, 1892
J. EDWARD HOLLIS	I.	January, 1892
RUFUS A. WHITE	II.	January, 1892
MARY R. MARTIN	II.	January, 1892
LAWRENCE BOND	III.	January, 1894
ABBY E. DAVIS	III.	January, 1894
H. USHER MONRO	IV.	January, 1894
COLON S. OBER	IV.	January, 1894
FRANK J. HALE	V.	January, 1893
ALBERT B. PUTNEY	V.	January, 1893
AMOS E. LAWRENCE	VI.	January, 1893
ALBERT L. HARWOOD	VI.	January, 1893
GEORGE C. TRAVIS	VII.	January, 1893
FRANCIS B. HORN BROOKE	VII.	January, 1894

STANDING COMMITTEES.

High School.

J. EDWARD HOLLIS. REV. FRANCIS B. HORN BROOKE.
REV. AMOS E. LAWRENCE.

Ward One.

CHARLES A. DREW. J. EDWARD HOLLIS.
REV. FRANCIS B. HORNBROOKE.

Ward Two.

REV. RUFUS A. WHITE. MRS. MARY R. MARTIN.
CHARLES A. DREW.

Ward Three.

MRS. ABBY E. DAVIS. LAWRENCE BOND.
REV. H. USHER MONRO.

Ward Four.

COLON S. OBER.REV. H. USHER MONROE.
LAWRENCE BOND.

Ward Five.

ALBERT B. PUTNEY. FRANK J. HALE.
REV. AMOS E. LAWRENCE.

Ward Six.

REV. AMOS E. LAWRENCE. ALBERT L. HARWOOD.
FRANK J. HALE.

Ward Seven.

GEORGE C. TRAVIS.

REV. FRANCIS B. HORN BROOKE.

J. EDWARD HOLLIS.

Evening Schools.

CHARLES A. DREW.

FRANK J. HALE.

MRS. MARY R. MARTIN.

Drawing, Music, and Sewing.

MRS. ABBY E. DAVIS.

ALBERT B. PUTNEY.

MRS. MARY R. MARTIN.

Text Books.

ALBERT B. PUTNEY.

REV. FRANCIS B. HORN BROOKE.

REV. AMOS E. LAWRENCE.

Rules and Regulations.

FRANK J. HALE.

GEORGE C. TRAVIS.

REV. AMOS E. LAWRENCE.

Salaries.

REV. FRANCIS B. HORN BROOKE.

LAWRENCE BOND.

J. EDWARD HOLLIS.

School Houses.

REV. RUFUS A. WHITE.

ALBERT L. HARWOOD.

REV. H. USHER MONRO.

Accounts.

LAWRENCE BOND.

CHARLES A. DREW.

ALBERT L. HARWOOD.

Supplies.

REV. AMOS E. LAWRENCE.

COLON S. OBER.

GEORGE A. MEAD.

Physical Culture.

REV. AMOS E. LAWRENCE.

GEORGE C. TRAVIS.

MRS. ABBY E. DAVIS.

CITY OF NEWTON.

IN BOARD OF SCHOOL COMMITTEE, }
June 24, 1891. }

The Chair appointed the following members as the committee to prepare the Annual Report: viz., Edward J. Hollis, Lawrence Bond, George C. Travis.

IN BOARD OF SCHOOL COMMITTEE, }
October 28, 1891. }

The Annual Report was presented by Mr. Hollis, and adopted.

Ordered: That three thousand copies of the Annual Report be printed.

MARY E. SHERWOOD,
Secretary.

REPORT OF SCHOOL COMMITTEE.

The School Committee of Newton respectfully submits the following report of the progress and condition of the public schools of the city for the school year ending June 30, 1891.

The number of school buildings in the city is twenty-three, and their total value including land and furniture is \$616,600.00. These buildings contain 122 school-rooms, of which, at the close of the year, 111 were occupied.

The number of teachers employed was 115, of whom seventeen were men and ninety-eight women.

There has been a notable increase in the school population, the school census of the present year showing the number of children between five and fifteen years of age to be 4,436, an increase over last year of 195. The total enrolment of pupils in the schools for this year has been 4,487, an increase of 124. The average whole number enrolled this year has been 3,906.4, an increase of 172. The average daily attendance has been 3,591.9, an increase of 185.4. A comparison of the statistics of the last school year with those of that preceding it shows an increase of only eighty in the whole number of pupils enrolled, a decrease of 9.3 in the average enrolment, and a decrease of 163.5 in the average daily attendance.

The great and sudden increase this year in the number attending our schools, as shown above, may justly be a source

of satisfaction to our people. It has caused considerable embarrassment to the committee to supply to so largely increased a body of scholars the teachers and facilities for their work, and even with the addition to our appropriation for the fiscal year which has been cheerfully made by the City Council, it will be impossible during the last six months of the fiscal year to supply our schools with many things that are almost necessary to their highest efficiency.

The following table exhibits the expenditures of the School Committee for the school years 1889-90 and 1890-91, respectively:

Items.	1889-90	1890-91.
Teachers' salaries, . . .	\$91,026 53	\$95,658 29
Superintendent's salary, . . .	3,000 00	2,337 50
Secretary's salary, . . .	300 00	300 00
Pay of janitors, . . .	6,870 00	7,124 00
Fuel,	7,155 63	7,803 68
Incidentals,	9,464 85	10,478 51
Evening schools,	591 15	804 75
Totals	\$118,408 06	\$124,506 73

The expenditures of this school year thus show an increase over those of last year of \$6,098.67, caused largely by the increase in the number of pupils, an increase found in every part of our city, and therefore bringing with it a disproportionately large increase of expense in buildings, furniture, teachers' salaries, janitors' wages, fuel, books, etc. Additional school-rooms have been brought into service in the Mason, Barnard, and High School buildings, and a new school established at Waban with one teacher and a probability that two teachers will be required early in the next school year.

The new Claflin school house, a handsome, convenient, and substantial structure of brick, was occupied in September for the first time, three teachers being transferred to it from the old building. The school which was organized at Waban

in December, will at the beginning of the next school year be housed in the new and commodious Waban school building now approaching completion.

With a view to the large incoming class looked for at the High School in September 1891, it has been determined to increase its capacity by dividing the assembly room into three school rooms. During the year the new drill-shed or gymnasium at the High School has been built and it will be occupied in September for the first time. The building is successful architecturally, and we are confident that it will prove a valuable addition to the equipment of the school, as it will not only afford much needed conveniences for physical culture, but will supply a large hall for assemblies of the school and for public exercises.

At the opening of the year we found ourselves without the services of a superintendent. Mr. Thomas Emerson, who had been for many years the faithful and efficient executive head of the schools, had presented his resignation in May, 1890, and no urgency on the part of committee, teachers or citizens could induce him to reconsider his determination. His services among us will always be remembered with gratitude. His successor, Mr. Joseph C. Jones of New York, was elected December 17, 1890, and entered upon the duties of his office, February 1, 1891, and at once commended himself to all as a man of wisdom, ability and energy, and we feel that the city is extremely fortunate in securing his services. We call attention to his report which contains the customary exhibit of the condition of the schools and a valuable discussion of certain proposed changes in our system.

In closing, we desire to thank the superintendent and the teachers, to whom is chiefly due whatever success the schools of Newton have attained during the year now closed.

J. EDWARD HOLLIS.
GEORGE C. TRAVIS.
LAWRENCE BOND.

SECRETARY'S REPORT.

APPROPRIATIONS AND EXPENDITURES FOR 1891.

General appropriation . . .	\$112,100 00	
Received from dog tax . . .	2,781 18	
	<hr/>	\$114,881 18
Transferred from incidentals . .		750 00
Transferred from evening schools		150 00
		<hr/>
		\$115,781 18
Amount paid superintendent . .	\$3,529 17	
" " teachers . . .	97,308 51	
" " janitors . . .	7,290 00	
" " secretary . . .	400 00	
" " fuel	7,250 27	
	<hr/>	
Amount expended		115,777 95
		<hr/>
Balance unexpended		\$3 23
		<hr/> <hr/>
School incidentals	\$9,000 00	
Transferred to general appropriation	750 00	
	<hr/>	\$8,250 00
Amount expended		8,249 94
		<hr/>
Balance unexpended		\$ 06
		<hr/> <hr/>

Evening schools	\$1,000 00	
Transferred to general appropriation	150 00	
	<hr/>	\$850 00
Amount expended . . .		833 42
		<hr/>
Balance unexpended . .		\$16 58
		<hr/> <hr/>

RECAPITULATION.

APPROPRIATIONS.

Total amount including dog tax	\$124,881 18
--------------------------------	--------------

EXPENDITURES.

General appropriation . . .	\$115,777 95	
Incidentals	8,249 94	
Evening schools	833 42	
	<hr/>	
Total amount expended . .		124,861 31
		<hr/>
Balance unexpended . . .		\$19 87

MARY E. SHERWOOD,

Secretary.

JANUARY 6, 1892.

SUPERINTENDENT'S REPORT.

To the School Committee of Newton:—

In complying with the rules of the Board, it cannot be expected that a very lengthy report of the schools of Newton for the year 1890-91 will be presented by me, since I have been in charge of this office only since February 1, 1891. I shall, so far as possible, follow very closely my predecessor's last report as to form and amount and character of the statistics usually presented. The administration of the schools the past year has not been different in results from the previous few years.

School Census.

Population of the city, U. S. Census of 1890 . . .	24,375
Number of persons in the city between five and fifteen years of age, May 1, 1891 . . .	4,436
Number of pupils between five and fifteen years of age attending the public schools in May, 1891 . . .	3,442
Number of pupils between five and fifteen years of age in private schools	277
Number of persons between five and fifteen years of age not attending school	717
Number of pupils between eight and fourteen years of age attending the public schools in May, 1891	2,630

Number of pupils between eight and fourteen years of age in private schools	190
Number of persons between eight and fourteen years of age not attending school	187

School Buildings.

Number of school houses	23
Number of occupied rooms, May 1, 1891	111
Number of unoccupied rooms, May 1, 1891	11
Total number of rooms, May 1, 1891	122
Number of halls, May 1, 1891	5
Total number of sittings, May 1, 1891	4,705

The total value of the school houses, furniture and land is \$616,600. The following table gives the value of the school property in detail :

High school buildings, furniture, and land	\$113,000 00
Bigelow school house, furniture, and land	44,000 00
Underwood school house, furniture, and land	24,000 00
Lincoln school house, furniture, and land	5,500 00
Eliot school house, furniture, and land	19,000 00
Jackson school house, furniture, and land	15,000 00
Adams school house, furniture, and land	22,500 00
Claffin school house(old), furniture and land	35,000 00
Claffin school house (new), furniture, and land	35,000 00
Peirce school house, furniture, and land	32,000 00
Davis school house, furniture, and land	13,000 00
Franklin school house, furniture, and land	15,500 00
Barnard school house, furniture, and land	21,000 00
Williams school house (old), and land	10,000 00
Williams school house (new), furniture, and land	35,000 00
Hamilton school house, furniture, and land	28,000 00
Prospect grammar school house, furniture, and land	31,000 00

Prospect primary school house, furniture, and land	\$7,500 00
Hyde school house, furniture, and land	24,500 00
Mason school house, furniture, and land	49,100 00
Rice school house, furniture, and land	20,000 00
Thompsonville school house, furniture, and land	5,000 00
Oak Hill school house, furniture, and land	12,000 00
<hr/>	
Total	\$616,600 00

Schools.

High School	(19 rooms)	1
Grammar schools	(51 rooms)	10
Primary schools	(39 rooms)	14
Mixed schools	(2 rooms)	2
<hr/>		<hr/>
Total	111	27

Teachers.

Number of teachers in high school	14
Male teachers, 5 ; female teachers, 9.	
Special teachers in high school	4
Male teachers, 1 ; female teachers, 3.	
Number of teachers in grammar school	51
Male teachers, 10 ; female teachers, 41.	
Number of teachers in primary schools	39
Number of teachers in mixed schools	2
Special teachers of sewing	3
Special teacher of music	1
Unassigned teacher	1
Whole number of teachers	115
Male teachers, 17 ; female teachers, 98.	

Enrolment and Attendance.

Whole number of pupils enrolled, 1890-91	4,487
Whole number of pupils enrolled, 1889-90	4,363
Increase	124
Average whole number of pupils enrolled, 1890-91	3,901.4
Average whole number of pupils enrolled, 1889-90	3,729.4
Increase	172
Average number of pupils in daily attendance, 1890-91	3,591.9
Average number of pupils in daily attendance, 1889-90	3,406.5
Increase	185.4
Average per cent. of daily attendance, 1890-91	92.1
Average per cent. of daily attendance, 1889-90	91.3
Increase . . . . .	.8
Whole number of tardinesses, 1890-91	3,108
Whole number of tardinesses, 1889-90	2,931
Increase	77
Whole number of pupils enrolled in evening schools, 1890 (males 128; females, 65)	193
Whole number of pupils enrolled in evening schools, 1889	123
Increase	70
Average number in attendance in evening schools, 1890	84
Average number in attendance in evening schools, 1889	95
Decrease	11

The following table shows the total enrolment, average whole number, average attendance, and per cent. of attendance in the schools from 1882 to 1891, a period of ten years. The increase in the total enrolment during this period was

810; in the average whole number, 1,806.7; in the average attendance, 1,003.6.

YEARS.	Total Enrolment.	Average Whole Number.	Average Attendance.	Per cent of Attendance.
1882	3,759	3,092.7	2,796.7	90.4
1883	4,002	3,170.3	2,903.8	91.6
1884	3,963	3,275.9	2,992.9	91.4
1885	4,029	3,356.5	3,047.2	90.8
1886	4,106	3,527.7	3,238.8	91.8
1887	4,237	3,665.7	3,357.1	91.3
1888	4,213	3,650	3,384	92
1889	4,283	3,738.7	3,570	92.4
1890	4,363	3,729.4	3,406.5	91.3
1891	4,487	3,902.4	3,591.9	92.1

A more detailed exhibit of the statistics of the schools will be found in the tables appended to this report.

Table I shows the number of persons in the city between five and fifteen years of age, May 1, 1882-91.

Table II shows the number of rooms, halls, sittings, pupils, teachers, and number of pupils to a teacher in each school, May 1, 1891.

Table III shows the number of pupils of different ages in each school, May 1, 1891.

Table IV shows the semi-quarterly attendance, by schools, for the year ending June 30, 1891.

Table V shows the total enrolment, attendance, etc., by schools, for the year ending June 30, 1891.

Table VI shows the number of pupils, and their average age, by grades, in September, 1890.

Table VII shows the annual enrolment in each grade in September, 1880-90.

Table VIII shows the percentage of the total annual enrolment in each grade, in September, 1880-90.

Table IX shows the distribution of the pupils in the high school, by grades and courses of studies, for the year ending June 30, 1891.

Remarks on the Census.

In conformity to the requirements of the Public Statutes, an enumeration of the school population of the city was made in May last, and a record of the same has been deposited in this office.

The school population of the city on the first day of May, 1891, was 4,436, an increase of 195 compared with the year 1890. By reference to table I in the appendix to this report, it will be seen that there is an increase in each of the wards except the fourth.

The number of pupils between five and fifteen years of age attending the public schools, on the first day of May, 1891, was 3,442; the number in private schools was 277, making the total number of pupils between five and fifteen years of age in the public schools of the city, and in private schools, on the first day of May, 1891, 3,719. Deducting this sum from 4,436, the total school population of the city, we have 717, which is the number of persons in the city, between five and fifteen years of age, not attending any school, public or private, on the first day of May, 1891. Of this number seventy-six were at work in mills or elsewhere, and 641, most of whom were under seven years of age, were at home.

School Houses.

The number of school houses is twenty-three. The number in use during the past year was twenty-two. The whole number of sittings is 4,914.

The new school house of six rooms and a hall in process of erection in Newtonville when the last report was issued, was completed and occupied at the opening of the schools in September. It is a building of extremely pleasing architectural effect, constructed of brick and in the most substantial manner. The hall in the third story is yet unfinished. The whole house is heated and ventilated by the Fuller-Warren

heating and ventilating apparatus. The rooms and corridors are finished in natural woods, and supplied with ample blackboard surface. On the opening of the school last fall, the pupils in three rooms of the old school were transferred to corresponding rooms in the new house. The building of this house provides for increase of school population in its vicinity for some time to come, there being three vacant rooms in each house. A school house of four rooms is nearly completed at Waban and will be ready for occupancy in September. It is the intention to finish but two rooms at present as being sufficient to accommodate the school population of this district for a year at least.

The Public Property Committee has ordered some long needed repairs on the Adams, Hyde, Underwood, Hamilton, Prospect, and High schools, besides providing for painting and freshening many rooms in other houses. A new heating and ventilating system has been adopted and the apparatus will be put in place in the Underwood during the vacation. It is believed excellent results are to follow its use. Its working will be anxiously watched in the hope that the right heating and ventilating apparatus for school purposes has been discovered at last. There are several houses demanding the attention of the proper authorities so deficient and almost useless are the means for ventilation now provided.

Cost of the Schools.

The amount expended for school purposes, exclusive of evening schools and new school buildings, under the direction of the School Board, during the past school year was \$123,701.98, being an average of \$31.71 per pupil. The amount expended under the direction of the City Council, chiefly for repairs, was \$6,350.29. The aggregate amount expended was \$130,052.27, being an average of \$33.33 per pupil.

The expenditures of the Board include the following items: teachers' salaries, \$95,658.29; salary of superintendent, \$2,337.50; salary of secretary, \$300; salaries of janitors, \$7,124; fuel, \$7,803.68; incidentals, \$10,478.51.

The incidental expenses include the following items: books, \$3,620.18; school supplies, \$3,151.89; janitors' supplies, \$220.11; repairs, \$610.97; furniture, \$801.37; printing, \$370.65; water, \$565.59; gas, \$131.40; truancy, \$75.13; miscellaneous, \$931.22.

The amount expended for evening schools was \$804.75.

The amount expended for new school buildings was \$25,000.00.

The following table shows the cost of the schools, exclusive of the amount expended for evening schools and new school buildings, from 1882 to 1891. It also shows the cost per pupil based upon the average whole number belonging.

Cost of the Schools, 1882--1891.

YEAR.	Whole Cost.	Average Whole Number.	Cost per Pupil.
1882 . . .	94,885.43	3,092.7	30.68
1883 . . .	119,359.75	3,170.3	37.65
1884 . . .	109,103.42	3,185.9	34.25
1885 . . .	111,632.56	3,356.5	33.25
1886 . . .	121,154.20	3,527.7	34.35
1887 . . .	124,718.13	3,655.7	34.11
1888 . . .	127,110.10	3,650	34.82
1889 . . .	123,918.94	3,738.7	33.14
1890 . . .	126,699.64	3,729.4	33.97
1891 . . .	130,052.27	3,902.4	33.33

CITIES OF THE STATE.					
For 1890-91 by the State valuation of 1890.	CITIES.	Percentage of valuation appropriated to Public Schools, equivalent to Mills and hundredths of Mills.	For 1890-91 by the State valuation of 1890.	CITIES.	Percentage of valuation appropriated to Public Schools, equivalent to Mills and hundredths of Mills.
1	Gloucester . . .	\$.004.48	14	Cambridge . . .	¢\$.003.22
2	Brockton . . .	.003.92	15	Salem . . . . .	.003.17
3	Woburn . . . . .	.003.88	16	Worcester . . . .	.003.17
4	Malden . . . . .	.003.65	17	Lynn . . . . .	.003.05
5	Northampton . .	.003.59	18	Lowell . . . . .	.003.02
6	Taunton . . . . .	.003.58	19	Newton . . . . .	.003.00
7	Somerville . . . .	.003.51	20	Springfield . . .	.002.75
8	Quincy . . . . .	.003.47	21	New Bedford . . .	.002.70
9	Haverhill . . . .	.003.37	22	Lawrence . . . .	.002.65
10	Fitchburg . . . .	.003.36	23	Fall River . . . .	.002.22
11	Waltham . . . . .	.003.33	24	Newburyport . . .	.002.17
12	Chelsea . . . . .	.003.33	25	Boston . . . . .	.001.92
13	Holyoke . . . . .	.003.25			

TOWNS AND CITIES IN MIDDLESEX COUNTY.							
For 1889-90 by the State valuation of 1889.		CITIES AND TOWNS.	Percentage of valuation appropriated to Public Schools equivalent to Mills and hundredths of Mills.	For 1889-90 by the State valuation of 1889.		CITIES AND TOWNS.	Percentage of valuation appropriated to Public Schools equivalent to Mills and hundredths of Mills.
For 1890-91 by the State valuation of 1890.							
3	1	Westford . .	\$.004.70	32	28	Boxborough .	\$.003.34
6	2	Holliston . .	.004.57	21	29	Waltham . .	.003.33
2	3	Marlborough .	.004.50	31	30	Framingham .	.003.27
23	4	N. Reading . .	.004.49	26	31	Townsend . .	.003.23
4	5	Natick . . .	.004.28	39	32	Tyngsboro' .	.003.23
5	6	Stoneham . .	.004.22	33	33	Cambridge . .	.003.22
1	7	Wilmington .	.004.21	27	34	Acton . . .	.003.20
9	8	Ashland . . .	.003.93	38	35	Sherborn . .	.003.19
15	9	Woburn . . .	.003.88	40	36	Everett . . .	.003.04
8	10	Wakefield . .	.003.86	36	37	Lowell . . .	.003.02
11	11	Ayer . . . .	.003.78	37	38	Newton . . .	.003.00
17	12	Littleton . .	.003.78	34	39	Maynard . .	.002.99
12	13	Medford . . .	.003.77	35	40	Watertown .	.002.99
13	14	Arlington . .	.003.71	41	41	Lexington . .	.002.95
10	15	Hudson . . .	.003.71	42	42	Tewksbury .	.002.86
18	16	Malden . . .	.003.65	46	43	Weston . . .	.002.74
19	17	Reading . . .	.003.63	47	44	Sudbury . .	.002.63
25	18	Concord . . .	.003.61	44	45	Carlisle . .	.002.46
16	19	Hopkinton . .	.003.60	49	46	Billerica . .	.002.45
20	20	Shirley . . .	.003.58	43	47	Bedford . .	.002.39
30	21	Pepperill . .	.003.51	48	48	Dunstable . .	.002.39
28	22	Somerville . .	.003.51	52	49	Dracut . . .	.002.24
22	23	Winchester . .	.003.47	45	50	Belmont . .	.002.23
7	24	Ashby . . . .	.003.44	51	51	Burlington .	.001.96
14	25	Chelmsford . .	.003.42	54	52	Groton . . .	.001.89
24	26	Wayland . . .	.003.40	50	53	Stow . . . .	.001.77
29	27	Melrose . . .	.003.36	53	54	Lincoln . . .	.001.73

Books and Supplies.

The number of text books in use during the past year was 42,239, an increase of 1,150 compared with the previous year. The number of reference books was 2,099, an increase

of twenty. The number of books worn out at the close of the year was 1,334, a decrease of 4,140 ; the number missing was 113.

The following table shows the distribution of the books among the several schools.

SCHOOLS.	Text Books.	Reference Books.	Worn Out.	Missing
High	7,997	260	80	28
Bigelow	4,680	184	180	8
Eliot	2,947	268	160	20
Adams	2,750	146	40	11
Claflin	3,055	170	75	2
Peirce	6,102	218	300	4
Williams	3,130	210	172	16
Hamilton	1,863	123	32	10
Prospect	2,704	150	30	8
Hyde	2,823	129	70	3
Mason	3,873	213	185	3
Oak Hill	315	26	10	0
Totals	42,239	2,097	1,334	113

The amount expended for new books was \$3,320.18 ; the amount paid for rebinding books was \$1,300 ; the total amount expended for books was \$3,620.18. The cost per pupil, based upon the average number enrolled, was ninety-two cents.

The amount expended for supplies was \$3,151.89. The cost per pupil was eighty cents.

The following table shows the amount expended for books and supplies during each school year from 1884 to 1891. It also shows the average cost per pupil. The amount expended for books includes the cost of new books and the cost of repairing old books :

School Year.	Books.	Cost per Pupil.	Supplies.	Cost per Pupil.	Total per Pupil.
1884-5	\$5,896.30	\$1.76	\$3,177.44	\$0.95	\$2.71
1885-6	2,953.92	.84	3,746.95	1.06	1.90
1886-7	3,842.00	1.05	2,797.37	.76	1.81
1887-8	2,078.67	.57	3,903.21	1.06	1.63
1888-9	2,315.12	.62	2,754.82	.74	1.36
1889-90	2,441.75	.65	3,175.04	.85	1.50
1890-91	3,620.18	.92	3,151.89	.80	1.72

The increase in the amount expended for books the last year is easily accounted for by referring to the table showing the number of books worn out in 1889-90. It will be seen that after repairing such as were worth repairing there were 5,574 books wholly valueless for pupils' use any longer. It is the common experience that the ordinary school book lasts about four years. Hence during the past year, this large deficiency and the wants of the new schools that were organized had to be met by new purchases.

Graduates of the Schools.

The number of diplomas awarded in the several grammar schools was 224. They were distributed as follows: Bigelow 44, Eliot 10, Adams 16, Claflin 23, Peirce 42, Williams 17, Hamilton 9, Prospect 10, Hyde 17, Mason 36.

The number of high school certificates awarded in the several grammar schools was 203. They were distributed as follows: Bigelow 30, Eliot 9, Adams 16, Claflin 23, Peirce 38, Williams 17, Hamilton 8, Prospect 10, Hyde 16, Mason 36.

The number of pupils entering the high school from the eighth grade class on an average scholarship of seventy-five per cent. under the order of the School Committee passed in June, was 89. They were distributed as follows: Bigelow 16, Eliot 1, Adams 9, Claflin 14, Peirce 11, Williams 19, Hamilton 0, Prospect 0, Hyde 5, Mason 14.

The number of pupils who took their examinations for the Institute of Technology last June was sixteen. Three took the final examinations and were admitted without conditions. Thirteen took the preliminary examinations and all passed clear, with the exception of one failure in French.

At Yale, two students took the final examinations, and passed in every subject.

At Boston University, three students were examined. Two took the preliminary examinations; one passed clear, and one failed in Caesar and Cicero. One student took the complete examinations and passed with credit in algebra.

At Harvard—including one at the Annex—fourteen pupils were examined. Six took the final, and eight, the preliminary examinations. The whole number of conditions was three: One student was conditioned in history; one, in advanced Latin; and one in English. The whole number of honors received was thirty-two. One, in elementary French; one, in elementary German; two, in elementary Greek; seven in elementary Latin; five, in history; two, in algebra; four, in advanced Greek; two, in advanced Latin; three, in Greek composition; three, in Latin composition; one, in geometry; and one, in physics.

Certificates of admission were given as follows: for Smith one, for Wellesly five, and for Vassar two.

The number of pupils graduated from the high school last June, was sixty-three. Of these twenty-five had completed the general course; nineteen, the classical course; three, the Institute course; and thirteen, the mercantile course.

The record for the school is very encouraging to both pupils and parents.

Evening Schools.

During the school year, there were two evening schools maintained; one, a drawing school at the Prospect school

house, Newton Upper Falls, the other including a class in drawing at the Jackson school house, Nonantum. With the exception of the class in drawing at the Jackson, the two schools were opened October 6, and discontinued December 19, 1890. The drawing class at the Jackson was not organized till the evening of October 29, and closed after twenty-three sessions with the other schools. The other schools were in session thirty-three evenings. There were fifty names enrolled at the Prospect. The average attendance of the school was 26.2 with an average per cent. of 52.4.

Each pupil was obliged to make a deposit of \$1.00 as an evidence of his good faith in the school, with the understanding that all who should reach an attendance of fifty per cent. could have the money returned. Thirty-one received the rebate. The balance, \$19, was paid into the city treasury. The drawing class at the Jackson enrolled fifteen different names. The average attendance was 16.47 evenings, showing a very pleasing interest in the study.

The total enrolment at the Jackson school, including the drawing class, was 143, ninety-five men and forty-eight women. Of the 128 in attendance on the regular evening school, twenty-nine were present less than two evenings, sixty-three were illiterates, having an average attendance of 17.52 nights.

The thirty-six others of this class attended 15.56 evenings on an average. There were two teachers in charge of the Prospect school and nine at the Jackson, or four men and seven women. No record of the age of the pupils enrolled at the Prospect has been reported. At the Jackson the age of the pupils ranged from thirteen to twenty-four years. The total enrolment of the two schools was 193.

The cost of the evening schools for the past year was \$804.75. Teachers' salaries, \$657; janitors' pay, \$49.50; incidentals, \$98.25. The cost per pupil based on the total

average attendance, \$9.58. The cost per pupil in 1888, \$10.88; in 1889, \$6.25.

The order of the Board permitting pupils to enter the high school from the eighth grade classes of the grammar schools under certain conditions was accepted in September 1890 by thirty boys and girls. The conditions imposed were that pupils should choose the five year classical course and waive all privileges to change to other courses during their connection with the high school. The class began its work on September 1, 1890, and has accomplished as much as could well be expected during the year. The conditions and delinquents are no more in proportion than in the fourth class.

There is no evidence that the pupils who remain to the close of the high school course, will not have done as well as if they had continued a year longer in the grammar school. A modification of the order was adopted in June for the benefit of the eighth grade pupils of the present school year. A scholarship standing of seventy-five per cent. average in all studies for the year was required, the restrictions as to course and length of time in the school removed. This privilege has been accepted by eighty-six pupils who enter the high school this September. Their choice of studies does not appear different from those of the ninth grade pupils just entering. The average age of the class entering last year was fourteen years and six months; that of this year is fourteen years and seven months. There is little doubt that this action of the committee is a wise one and will be beneficial every way to the boys and girls accepting its privileges.

The course of study for the primary and grammar schools is too long by one year or takes one year more to accomplish it than is necessary. Theoretically children enter school in this state at five years of age and remain three

years in the primary schools or grades, and six in the grammar schools or grades, so that when they begin their high school work are expected to be only fourteen years old. Last year the average age of the fourth grade class, 196 in number, was fifteen years and three months; this year the average age is fifteen years and eight months. The following table shows by schools the average age of the pupils in the eighth and ninth grade classes September 1890. Add one year for their present age.

		VIII	IX
Bigelow,	Sept. 1890, age.	13.10	14.10
Eliot,	" " "	13.2	14.11
Claffin,	" " "	14.4	15.1
Adams,	" " "	13.6	14.11
Peirce,	" " "	13.7	14.8
Williams,	" " "	13.1	14.9
Hamilton,	" " "	13.5	13.11
Prospect,	" " "	13.7	14.5
Hyde,	" " "	14.3	14.5
Mason,	" " "	13.6	14.3
		<hr/>	<hr/>
Average age,	" " "	13.7	14.8
Present age, September 1891.		14.7	15.8

From this it will be seen that if pupils begin school at five as most do, or a few months older, we should expect they would enter the high school on finishing the work of the eighth grade. The facts are they are kept a year longer. Recognizing that this was a weak point in the grading of the lower schools my predecessor hoped to correct it by mid-year promotions. The complaint is a just one that boys and girls are kept too long in our grammar schools, that grammar school pupils should accomplish all that is desired or required in less time that they may enter upon the broader and closer work of the high school at an earlier age. There is a mis-

taken idea prevalent that grammar schools are an end in a child's education. Why not primary schools? There can be no more reason why one particular year or division of school work should be selected as an end in the schools of Newton than are other years. Why the ninth grade more than the third grade is not apparent. There is some reason why the close of the high school work may be considered an end so far as the majority of the Newton pupils are concerned, since it is all the Newton public feel they can offer in the education of their children, and because too, the completion of the high school work fits a boy or girl for other duties in life beside college. The class that left the high school in June had an average age of eighteen years and nine months, and when they enter college this fall, will be nineteen years old.

If we add to this age the time necessary to complete a college and professional course, these boys and girls will be twenty-six or twenty-seven years old, too late to begin their real life work. These pupils have been wronged.

A study of this problem shows me that there should be but eight years to the high school, and that the theory that boys and girls beginning school at five, take up high school work at thirteen should be made true by earlier and more frequent promotions, for the facts show that even promoted at the end of the eighth year Newton pupils are fourteen years and seven months old on entering the high school. How shall we remedy this? By regrading the schools according to the following schedule and by making a few changes in the present course of study.

The grading of the Newton schools and of most New England schools is into three departments, the primary covering three years of work, the grammar school requiring six years to complete the course prepared and the high school divided into four grades or classes of one year each. A more logical and symmetrical grading would be to make each department cover a term of four years. This extends the

primary department through the fourth year of the pupil's school life. The grammar department will then include the fifth to the eighth years inclusive where the pupils will graduate to the high school, which remains unchanged in its grading.

Proposed Grading of Newton Schools.

Dept.	Primary				Grammar				High School			
Years.	1	2	3	4	5	6	7	8	9	10	11	12

This arrangement eliminates the ninth year and places the pupils in the high school earlier by one year. The terms primary, grammar and high school have no significance only as indicating some special four years of school work, for the step from the primary to the grammar, or grammar to the high school is and should be no greater than between any other contiguous school years. The proposed grading is into twelve years of twelve classes. In those towns where this grading obtains, the terms primary and grammar are seldom used by pupils and teachers to designate the advancement of a pupil in his course towards graduation. The terms first grade, fifth grade, eighth grade, etc., being used as these terms, represent the year as well as class. The terms may be retained, however, as in a way representing certain changes in methods but not in studies. The first four years represent the years devoted more to oral work and instruction, than the second four or grammar schools, where text books are introduced and pupils are taught their use. In these years, if instruction is properly given, the pupil learns how to study and why he should depend on himself. The step into the high school is to work requiring still greater personal effort for the benefit of greater mental strength and confidence aroused.

There are many matters suggesting themselves that might be discussed here, but which I must defer to special reports the coming year.

Some of these points are as follows :

1. The practice of granting the grammar school graduates both a diploma and a certificate the latter of which only is accepted for admission to the high school.

2. The matter of a careful revision of the course of study for the primary and grammar grades.

3. The purchase, care, and distribution of books and supplies.

4. The necessity of an examination of the school furniture, seats and desks, now in use in some of the schools. Many of these seats and desks are too small for the pupils in a large number of the rooms.

5. The question of the supply of teachers and the best method of securing them,—a matter demanding serious consideration.

I wish to express my gratitude to the Board for the uniform kindness and courtesy shown me during my short connection with your schools, and to the teachers and officers who have given me their sympathy and assistance in my efforts to become acquainted with the duties of this office. I beg a continuance of all the coming year.

Respectfully submitted,

JOSEPH C. JONES.

Superintendent of Schools.

APPENDIX.

STATISTICS IN DETAIL.

TABLE I.—Number of persons in the City between five and fifteen years of age, May 1, 1882-91, by Wards.

WARDS.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	Increase.	Decrease.
I. . . .	463	512	541	527	545	582	618	642	644	672	28	..
II. . . .	645	699	705	705	717	732	768	795	833	877	44	..
III. . . .	506	519	543	531	594	598	617	658	684	742	58	..
IV. . . .	562	554	567	593	602	599	629	640	621	607	..	14
V. . . .	470	460	464	423	480	486	532	553	513	554	41	..
VI. . . .	549	558	559	560	559	601	608	621	649	681	32	..
VII. . . .	263	262	274	272	288	295	315	293	297	303	6	..
Totals . .	3,458	3,564	3,653	3,611	3,785	3,893	4,087	4,202	4,241	4,436	209	14

TABLE II.—Number of rooms, halls, sittings, pupils, teachers, and number of pupils to a teacher in each school, May 1, 1891.

SCHOOLS.	Rooms Occupied.	Rooms Unoccupied.	Halls.	Sittings.	Number of Pupils.			Number of Teachers.	Number of Pupils to a Teacher.
					Girls.	Boys.	Total.		
High	19	0	0	590	256	197	453	*14	32.4
Bigelow	8	0	1	382	169	158	327	8	40.9
Underwood	4	0	0	194	69	89	158	4	39.5
Lincoln	2	0	0	96	24	39	63	2	31.5
Eliot	4	0	0	193	58	89	147	4	36.8
Jackson	5	1	0	253	102	133	235	5	47
Adams	6	0	0	276	108	138	246	6	41
Clafin	6	6	1	276	150	121	271	6	45.2
Peirce	6	0	0	265	126	118	244	6	40.7
Davis	4	0	0	202	84	101	188	4	47
Franklin	4	0	0	208	78	75	153	4	38.3
Barnard	4	0	0	196	71	70	141	4	35.3
Williams	8	0	0	370	158	133	291	8	36.3
Waban	1	0	0	36	15	19	34	1	34
Hamilton	4	0	1	163	54	51	105	4	26.3
Prospect	6	2	1	266	108	103	211	6	35.2
Hyde	6	0	0	284	113	106	219	6	36.5
Mason	8	0	1	361	168	153	321	8	40.1
Rice	4	0	0	218	94	185	179	4	44.8
Thompsonville	1	1	0	49	18	21	49	1	49
Oak Hill	1	1	0	36	7	6	13	1	13
Totals	111	11	5	4,914	2,040	2,008	4,048	105	37.7

*Also four special teachers.

TABLE III. — Number of pupils of different ages in each School, May 1, 1891.

Schools.	Under 5 years.	5 to 6.	6 to 7.	7 to 8.	8 to 9.	9 to 10.	10 to 11.	11 to 12.	12 to 13.	13 to 14.	14 to 15.	Over 15.
High	0	0	0	0	0	0	0	0	0	11	36	406
Bigelow	0	0	0	1	3	28	37	59	52	53	49	45
Underwood	0	13	27	39	39	28	11	1	0	0	0	0
Lincoln	1	8	11	18	10	19	1	0	3	1	0	0
Eliot	0	0	0	0	3	16	32	25	23	25	13	10
Jackson	0	39	38	47	49	30	14	10	2	5	0	1
Adams	0	15	19	19	20	22	19	32	29	27	22	22
Clafin	0	25	26	28	24	23	19	32	25	27	24	18
Peirce	0	0	0	0	0	0	9	25	43	69	50	48
Davis	0	17	24	25	32	33	24	14	6	7	3	3
Franklin	0	12	25	24	21	19	23	12	12	3	2	0
Barnard	0	3	14	10	20	22	22	17	16	9	6	2
Williams	0	8	24	26	23	26	27	38	36	34	28	21
Hamilton	0	7	12	14	11	9	9	14	9	9	16	5
Prospect	0	10	17	27	24	24	28	23	19	10	20	9
Hyde	0	14	16	17	18	29	23	24	27	13	16	22
Mason	0	0	2	7	17	34	35	56	55	55	30	30
Rice	0	30	40	37	31	29	8	3	0	1	0	0
Thompsonville	0	18	5	11	4	1	0	0	0	0	0	0
Oak Hill	0	0	2	2	1	3	1	1	0	2	1	0
Totals	1	219	302	352	350	395	342	386	357	361	306	642

TABLE IV.—Semi-quarterly attendance, etc., by schools, for the year ending June 30, 1891.

SCHOOLS	I.						II.						III.						IV.				
	Average Whole Number.	Average Attendance.	Percentage of Attendance.	Cases of Tar-diness.	Cases of Cor-poral Punishment.		Average Whole Number.	Average Attendance.	Percentage of Attendance.	Cases of Tar-diness.	Cases of Cor-poral Punishment.		Average Whole Number.	Average Attendance.	Percentage of Attendance.	Cases of Tar-diness.	Cases of Cor-poral Punishment.		Average Whole Number.	Average Attendance.	Percentage of Attendance.	Cases of Tar-diness.	Cases of Cor-poral Punishment.
High . . .	462.1	433.3	93.5	65	0		479.7	442.7	92.4	103	0		478.6	455.2	94.9	183	0		466.8	424.2	90.9	176	0
Bigelow . .	324.2	309.8	95.5	9	0		325.2	305.9	94.6	4	0		317.5	296.8	93.6	4	0		319.5	294.9	92.4	14	1
Underwood .	153.8	144.4	93.9	15	0		155.8	142.9	92.2	7	0		150.4	134.1	89.1	9	0		154.3	134.2	86.9	10	0
Ellet . . .	166.2	157.9	95.2	3	2		160.0	147.9	92.7	4	1		155.3	141.2	91.4	5	1		155.2	140.8	91.1	2	0
Jackson . .	193.9	183.3	94.8	16	5		197.	184.4	93.6	14	3		199.9	182.3	91.7	32	2		199.3	183.6	92.4	25	2
Lincoln . .	63.0	59.7	94.9	16	2		63.3	61.9	94.7	4	4		61.7	55.6	90.1	8	2		58.0	54.9	94.9	9	1
Adams . . .	239.5	229.7	95.9	5	0		242.8	231.6	95.4	7	0		237.7	222.0	93.4	19	0		233.4	214.9	91.8	5	0
Clafin . . .	242.1	229.6	94.9	24	0		241.7	229.9	95.3	20	0		244.7	220.6	94.6	32	0		241.2	224.8	93.3	6	2
Pierce . . .	248.8	241.7	97.1	9	3		251.7	241.8	96.	5	4		252.4	238.0	94.3	6	1		250.1	235.3	94.1	6	0
Davis . . .	139.9	134.3	96.7	10	1		167.0	139.3	95.4	7	0		170.9	139.8	93.6	15	0		169.3	160.4	94.4	6	0
Franklin . .	150.4	147.8	94.4	16	0		158.3	147.3	93.	17	1		149.1	136.2	91.2	15	0		146.9	136.7	93.1	6	0
Barnard . .	148.6	139.7	93.9	7	0		152.2	146.7	96.1	10	0		150.2	139.1	92.6	6	0		145.6	136.1	93.2	8	0
Williams . .	282.1	264.1	93.5	10	1		282.6	264.2	93.2	9	0		285.3	266.2	93.1	21	0		273.5	245.3	89.7	12	0
Hamilton . .	103.6	99.5	93.9	5	0		106.1	100.3	94.4	5	0		105.8	98.7	92.9	6	1		107.8	101.3	93.9	13	0
Waban . . .	..	..	..	..	..		..	..	..	..	..		24.3	22.2	91.	9	0		27.	22.	83.	31	0
Prospect . .	205.6	193.6	93.9	7	0		204.4	193.3	94.2	13	2		208.3	195.5	93.5	12	0		203.9	187.5	91.4	16	0
Hyde . . .	230.1	210.7	92.3	32	1		237.0	216.7	90.8	40	2		232.6	217.1	92.9	75	1		217.0	193.8	89.6	83	4
Mason . . .	310.2	289.8	93.3	30	0		316.7	289.2	91.3	14	0		313.4	289.9	92.6	19	1		322.8	285.9	92.9	20	0
Rice . . .	166.9	146.0	87.3	20	0		178.1	162.3	91.3	14	0		180.8	166.3	90.4	19	0		170.0	141.9	83.5	12	0
Thompson's .	38.	33.5	88.2	3	0		38.4	32.3	84.1	3	0		35.6	32.8	92.1	2	0		34.2	31.	90.9	2	0
Oak Hill . .	19.	18.	94.	15	0		18.	15.	80.1	13	6		17.	15.	91.7	6	0		16.	14.	87.1	4	0

TABLE IV, (Concluded).—Semi-quarterly attendance, etc., by schools, for the year ending June 30, 1891.

SCHOOLS.	V.						VI.						VII.						VIII.					
	Average Whole	Average Atten-	Percentage of	Cases of Tar-	Cases of Cor-	Punishment.	Average Whole	Average Atten-	Percentage of	Cases of Tar-	Cases of Cor-	Punishment.	Average Whole	Average Atten-	Percentage of	Cases of Tar-	Cases of Cor-	Punishment.	Average Whole	Average Atten-	Percentage of	Cases of Tar-	Cases of Cor-	Punishment.
High . . .	459.4	416.3	90.6	11	0	0	452.1	411.5	90.1	124	0	0	439.4	403.9	92.6	11	0	0	418.6	387.2	92.5	151	0	0
Bigelow . . .	328.7	300.7	91.5	12	0	0	319.1	288.9	90.6	13	0	0	320.4	298.8	93.2	11	0	0	312.0	288.8	92.5	4	0	0
Underwood . . .	140.1	124.3	88.3	13	0	0	146.9	129.4	88.0	13	0	0	152.3	132.7	87.1	13	0	0	150.7	134.3	90.	18	0	0
Eliot . . .	157.5	140.1	89.4	5	0	0	152.5	131.2	86.8	7	0	0	144.8	128.9	89.7	11	0	0	138.7	126.1	91.7	8	0	0
Jackson . . .	198.5	178.4	89.9	10	0	0	201.7	183.9	91.3	13	1	1	220.6	202.4	92.	11	3	3	199.9	175.9	87.9	12	4	4
Lincoln . . .	56.5	50.5	89.6	5	0	0	59.8	55.2	92.5	3	0	0	63.0	58.7	93.1	6	2	2	64.2	59.7	93	12	4	4
Adams . . .	228.6	197.6	86.5	5	0	0	237.2	217.9	91.8	4	0	0	241.2	219.4	91.5	6	1	1	232.7	211.7	91	9	0	0
Clafin . . .	244.1	227.0	93.	26	0	0	245.4	226.8	92.6	29	0	0	239.2	217.1	90.8	9	0	0	237.9	222.1	93.5	13	0	0
Peirce . . .	247.1	226.5	91.6	2	1	1	242.8	228.9	94.3	3	1	1	232.4	218.2	94.	2	0	0	226.7	215.2	94.9	9	0	0
Davis . . .	168.5	153.6	91.	21	0	0	176.8	166.8	94.2	5	1	1	184.4	175.3	95.1	9	1	1	171.5	162.1	94.5	5	0	0
Franklin . . .	145.3	127.3	87.5	21	0	0	147.3	134.5	91.3	18	1	1	149.4	134.5	90.	11	5	5	145.5	134.0	91.9	26	7	7
Barnard . . .	138.4	118.2	85.2	3	0	0	136.4	126.9	92.8	3	0	0	136.6	127.5	93.4	7	0	0	132.9	125.2	94.1	12	0	0
Williams . . .	271.9	240.5	87.3	14	0	0	275.8	245.3	89.6	5	0	0	281.2	259.1	92.1	13	0	0	273.3	251.4	91.4	12	0	0
Hamilton . . .	110.4	100.4	91.0	12	0	0	105.0	98.8	94.1	18	2	2	105.0	98.8	94.1	18	2	2	104.0	96.9	93.	12	0	0
Waban . . .	27.	18.5	70.	20	0	0	24.	19.	78.	18	0	0	25.	21.	84.	22	0	0	22.5	16.4	72.9	7	0	0
Prospect . . .	200.5	182.9	91.1	11	3	3	199.0	187.2	93.9	21	2	2	199.0	187.2	93.9	21	2	2	192.1	177.4	91.7	11	1	1
Hyde . . .	212.4	184.5	86.7	50	1	1	214.0	191.5	89.1	43	6	6	217.0	195.2	90.	25	1	1	211.5	188.0	89.1	42	1	1
Mason . . .	321.0	294.6	91.9	15	1	1	319.6	294.9	92.4	30	1	1	316.9	292.8	92.3	26	2	2	300.4	276.6	92.1	22	2	2
Rice . . .	165.7	145.7	88.1	13	0	0	171.0	154.8	90.4	11	0	0	170.5	154.4	90.6	10	0	0	163.8	147.4	89.8	16	0	0
Thompsonville . . .	35.2	31.9	90.5	3	0	0	36.2	31.7	87.8	3	0	0	38.4	34.7	90.4	3	0	0	38.	32.	84.2	3	0	0
Oak Hill . . .	11.	9.	78.	7	4	4	11.	10.	91.1	0	0	0	11.	9.	91.8	5	2	2	10.	9.	86.1	6	1	1

TABLE V.—Total Enrolment, etc., by Schools for the year ending June 30, 1891.

SCHOOLS.	Total Enrolment.			Average Whole Number.	Average Attendance.	Per cent. Attendance.	Cases of Tardiness.	Cases of Cor- poral Punishment.
	Boys.	Girls.	Total.					
High	224	286	510	457.1	422.2	92.4	1055	0
Bigelow . . .	179	186	365	320.6	298.1	93.0	64	1
Underwood . .	91	80	171	150.5	135.8	90.2	95	0
Eliot	107	71	178	153.8	139.3	90.6	45	4
Jackson . . .	141	113	254	201.4	184	91.4	114	22
Lincoln . . .	44	28	72	61.4	57	92.8	63	11
Adams	149	127	276	236.6	218	92.1	53	1
Claffin . . .	125	152	277	241.9	226	93.4	218	0
Peirce	123	135	258	244	230.8	94.6	42	12
Davis	107	88	195	171	161.5	94.4	46	3
Franklin . . .	83	91	174	149.8	137.3	91.7	130	15
Barnard . . .	81	79	160	142.6	132.4	92.8	49	0
Williams . . .	163	191	354	278.6	254.5	91.3	97	1
Hamilton . . .	61	66	127	106.9	101.1	94.6	77	3
Waban	19	15	34	25	19.9	79.7	107	0
Prospect . . .	119	117	236	201.8	186.5	92.4	104	13
Hyde	112	120	232	221.5	199.7	90.2	390	20
Mason	181	182	363	315.1	290.5	92.2	176	7
Rice	91	99	190	170.9	152.4	89.2	105	0
Thompsonville .	23	20	43	36.8	32.5	88.3	22	0
Oak Hill . . .	9	9	18	14.1	12.4	87.9	56	13
Totals . . .	2232	2255	4487	3901.4	3591.9	92.1	3108	126

TABLE VI.—Number of pupils and their average age, by grades, in September, 1890.

GRADES.	I.			II.			III.			IV.			V.			VI.		
	No. of Pupils.	Av. Age.		No. of Pupils.	Av. Age.		No. of Pupils.	Av. Age.		No. of Pupils.	Av. Age.		No. of Pupils.	Av. Age.		No. of Pupils.	Av. Age.	
		Yrs.	Mos.		Yrs.	Mos.		Yrs.	Mos.		Yrs.	Mos.		Yrs.	Mos.		Yrs.	Mos.
High . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bigelow . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Underwood	59	6	8	48	8	4	52	8	4	46	9	8	48	9	10	77	11	10
Eliot . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jackson	90	6	5	67	8	2	43	9	6	10	10	6	42	11	5	38	12	0
Lincoln	30	6	0	23	8	9	12	8	6	..	..	..	..	..	..	..	..	..
Adams	37	6	1	24	7	7	27	8	5	26	10	2	29	11	0	33	12	0
Clafin	36	6	0	20	7	3	30	8	8	31	9	7	47	9	4	20	12	9
Peirce . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	21	11	3	58	12	3
Davis	41	6	5	47	7	7	38	9	0	40	11	1	..	..	..	..	..	..
Franklin	41	6	2	46	7	11	37	10	0	23	10	3	16	11	3	..	..	..
Barnard	31	6	9	29	8	9	16	9	1	35	10	4	24	11	7	21	11	6
Williams	36	6	1	47	8	3	25	9	1	25	10	2	34	10	9	33	11	11
Hamilton	23	6	1	13	7	7	15	8	6	14	9	10	11	11	0	9	11	9
Prospect	35	5	7	32	7	8	38	8	7	25	9	7	25	10	11	23	12	0
Hyde	51	6	9	42	7	9	25	9	0	29	9	2	28	11	4	34	11	7
Mason . . . . .	..	..	..	..	..	..	29	9	4	65	10	5	65	11	2	49	12	1
Rice	71	6	2	61	7	8	44	8	5	..	..	..	..	..	..	..	..	..
Thompsonville	24	6	1	16	7	8	..	..	..	..	..	..	..	..	..	..	..	..
Oak Hill	2	5	8	4	7	0	..	..	..	5	8	4	..	..	..	6	11	1
Totals	607	6	2	519	7	10	431	8	10	410	9	11	390	10	11	401	11	10

TABLE VI, (Concluded).—Number of pupils and their average age by grades in September, 1890.

GRADES.	VII.			VIII.			IX.			X.			XI.			XII.			XIII.			XIV.			Total Number of Pupils.
	No. of Pupils.	Yrs.	Av. Age.	No. of Pupils.	Yrs.	Av. Age.	No. of Pupils.	Yrs.	Av. Age.	No. of Pupils.	Yrs.	Av. Age.	No. of Pupils.	Yrs.	Av. Age.	No. of Pupils.	Yrs.	Av. Age.	No. of Pupils.	Yrs.	Av. Age.	No. of Pupils.	Yrs.	Av. Age.	
High . . .																									491
Bigelow . . .	74	13	0	50	13	10	39	14	10	30	14	6	176	15	8	136	15	10	95	17	0	54	17	11	384
Underwood . .																									159
Eliot . . .	14	12	8	15	13	2	11	14	11																166
Jackson . . .																									200
Lincoln . . .																									65
Adams . . .	28	12	4	28	13	6	18	14	11																250
Clafin . . .	20	12	8	24	14	4	21	15	1																249
Peirce . . .	76	12	8	43	13	7	43	14	8																241
Davis . . .																									166
Franklin . . .																									163
Barnard . . .																									156
Williams . . .	34	13	1	36	13	1	17	14	9																289
Hamilton . . .	7	13	8	8	13	5	8	13	11																108
Prospect . . .	16	12	5	23	13	7	13	14	5																230
Hyde . . .	19	12	7	14	14	3	15	14	5																257
Mason . . .	52	12	6	39	13	6	35	14	3																334
Rice . . .																									176
Thompsonville .																									40
Oak Hill . . .				2	14	2																			19
Totals . . .	340	12	9	284	13	8	220	14	7	30	14	6	176	15	3	136	15	10	95	17	0	54	17	11	4,093

TABLE VII.—Annual enrolment in each grade in September, 1881-90.

DATE.	GRADES.														Total.
	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	XIII.	XIV.	
September, 1881 . .	530	386	381	394	270	312	311	211	150	114	58	77	37	..	3,231
September, 1882 . .	510	436	405	353	403	237	266	225	180	104	92	51	49	..	3,311
September, 1883 . .	514	454	436	398	369	298	210	183	166	125	78	70	40	..	3,341
September, 1884 . .	605	467	436	412	411	315	260	185	165	145	113	77	54	..	3,645
September, 1885 . .	590	425	425	469	401	337	256	243	140	140	131	92	61	..	3,703
September, 1886 . .	559	434	415	437	436	339	298	218	183	154	125	113	69	..	3,780
September, 1887 . .	555	425	407	405	434	395	245	244	192	135	132	99	76	..	3,744
September, 1888 . .	558	440	384	425	440	439	286	224	226	140	118	109	64	..	3,853
September, 1889 . .	597	472	396	396	417	411	335	271	208	195	129	78	68	..	3,973
September, 1890 . .	607	519	431	410	390	401	340	284	220	30	176	136	95	54	4,093

TABLE VIII. — Percentage of the total annual enrolment in each grade in September, 1881-90.

DATE.	GRADES.														Total.
	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	XIII.	XIV.	
September, 1881 . .	16.4	11.9	11.8	12.2	8.4	9.7	9.6	6.5	4.6	3.6	1.8	2.4	1.1	..	100
September, 1882 . .	15.4	13.2	12.2	10.7	12.2	7.2	8.	6.8	5.4	3.1	2.8	1.5	1.5	..	100
September, 1883 . .	15.7	13.6	13.1	11.9	11.	8.8	6.3	5.2	5.	3.7	2.4	2.1	1.2	..	100
September, 1884 . .	16.6	12.8	12.	11.3	11.3	8.6	7.1	5.1	4.5	4.	3.1	2.1	1.5	..	100
September, 1885 . .	15.9	11.5	11.5	12.6	10.8	9.	6.9	6.6	3.8	3.8	3.5	2.5	1.6	..	100
September, 1886 . .	14.8	11.2	11.	11.6	11.5	9.	7.9	5.8	4.8	4.1	3.5	3.	1.8	..	100
September, 1887 . .	14.8	11.4	10.9	10.8	11.6	10.6	6.5	6.5	5.1	3.6	3.5	2.7	2.	..	100
September, 1888 . .	14.5	11.4	10.	11.	11.4	11.4	7.4	5.8	5.9	3.6	3.1	2.8	1.7	..	100
September, 1889 . .	15.1	11.9	10.	10.	10.5	10.4	8.5	6.9	5.3	4.2	3.3	2.1	1.8	..	100
September, 1890 . .	14.8	12.7	10.5	10.2	9.5	9.8	8.3	6.9	5.4	.7	4.3	3.3	2.3	1.3	100

TABLE IX. — Distribution of pupils in High School by grades and courses of study.

GRADES.	GENERAL.		CLASSICAL.		MERCANTILE.		INSTITUTE.		SPECIAL.		TOTAL.		Total.
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	
X . . . . .	..	..	18	16	..	..	..	..	..	..	18	16	34
XI	40	70	30	23	11	..	11	1	..	..	92	94	186
XII	17	47	20	27	7	2	16	..	..	..	60	76	136
XIII	5	40	9	22	8	4	12	..	..	..	34	66	100
XIV	7	23	9	12	..	..	3	..	..	..	19	35	54
Totals	69	180	86	100	26	6	42	1	..	..	223	287	510

HIGH SCHOOL GRADUATES.

Classical Course.

JULIA DARLING COOLEY.	GERTRUDE MAY YOUNG.
GRACE MARY DENISON.	EDWIN ROGERS CRANE.
EVA MATTOCKS DENISON.	DANIEL CROSBY GREENE, JR.
FRANCES ELIZABETH HILDRETH.	HAROLD WESLEY LOKER.
FANNY IRVING LEONARD.	WILMON HENRY SHELDON.
ELIZABETH ELLA PACKER.	SAMUEL TYLER.
BESSIE GRAY PIERCE.	HOLMES WHITMORE.
ELIZABETH LINCOLN SMITH.	HOWARD WHITMORE.
	ELIZABETH CHAMBERLAIN WAKEFIELD.
	EDITH EVELYN NEWTON WILLIAMS.
	JAMES COLBY WALWORTH.

General Course.

ISABELLE VICTORIA ASTON.	LEONORA NESMITH SOULE.
FLORENCE ETHEL BLAISDELL.	ESTELLE SPURR.
MARY ELLEN DARCY.	LUCY MARION AUGUSTA STILES.
CORA ELLEN DAVIS.	IDA MAY THOMPSON.
HELEN MAUD FLAGG.	MILDRED HUNT THOMPSON.
MARY MOODY FYFFE.	ELIZABETH ELLERY THORPE.
HELEN OAKLEY HARDWICK.	EMMA JOSEPHINE TYLER.
MARY VERONICA HEALEY.	AMY WIRES.
MARY ALICE HECKMAN.	EMILY ANDEM WHISTON.
ALICE GERTRUDE HALL.	GEORGE DUPEE ALLEN.
CATHERINE ELIZABETH HEWES.	EDWARD ALLEN GREENE.
ELENORA MULLEN.	ARTHUR WILSON TARBELL.
MARGARET FRANCES MAHONEY.	HAROLD FITCH TRAVIS.
NELLIE ROGERS NICKERSON.	GEORGE HENRY YOUNG.

Institute Course.

HORTON SUMNER ALLEN.	FLETCHER BARKER COFFIN.
	EDWARD HALEY HUXLEY.

Mercantile Course.

MAUDE MARSTON CRANE.

GRACE EMILY TROFITTER.

TILLIE GILBERT COBB.

EFFIE MAY WHITON.

GERTRUDE FRIEND.

*JOSEPHINE WEST.

JOSEPHINE ELIZABETH WILSON GHANT.

ADA LOUISA HASTINGS.

JAMES STAIGG PHILBRICK.

GERTRUDE MARGUERITE JONES.

GEORGE NATHANIEL PUTNAM.

SARA MARIA MOSELY.

NORMAND ATKINSON TERRY.

*Special Student.

TEACHERS AND SCHOOLS.

Names.	Salary.	Beginning of Service.	Name of School.
Edward J. Goodwin . . .	\$3,000	September 1887	High
Ezra W. Sampson . . .	2,200	March . . 1870	"
S. Warren Davis . . .	2,000	January . . 1881	"
Andrew J. George . . .	1,800	September 1887	"
George L. Chandler . . .	1,800	September 1887	"
Josie A. Davis . . .	1,000	September 1888	"
Marguerite W. Abbot . .	1,200	September 1888	"
Maybell P. Davis . . .	1,000	September 1881	"
Minerva E. Leland . . .	1,000	September 1887	"
Annie W. Burbank . . .	1,000	September 1889	"
Emma F. Johnson . . .	1,000	January . . 1887	"
Frances P. Owen . . .	1,000	September 1887	"
Abby B. Bates . . .	900	September 1890	"
Julia N. Cole . . .	900	October . . 1890	"
H. Chapin Sawin . . .	2,000	October . . 1871	Bigelow.
Martha M. Bakeman . .	700	September 1870	"
Annie E. George . . .	620	April . . . 1883	"
Ella M. Donkin . . .	620	February . 1886	"
Florence H. Griffin . .	620	October . . 1888	"
Emily J. Dyer . . .	620	November . 1883	"
Ellen B. Prime . . .	620	January . . 1886	"
Elizabeth Ayles . . .	620	September 1883	"
Charlotte E. Sewall . .	700	June . . . 1884	Underwood.
Ada L. Donkin . . .	620	January . . 1884	"
Annie L. Wood . . .	620	January . . 1877	"
Josephine W. Littlefield	620	April . . . 1871	"
Nellie B. Rand . . .	700	October . . 1883	Lincoln.
Mary E. Wall . . .	620	December . 1886	"
George G. Edwards . . .	1,900	March . . . 1879	Eliot.
Louise N. Burbank . . .	700	September 1881	"
Anna L. Hazelton . . .	620	September 1888	"
Louise W. Clelland . . .	620	October . . 1872	"
Eliza J. Lovely . . .	700	September 1880	Jackson.
Lillian E. Rogers . . .	550	September 1889	"
Martha A. Lovely . . .	620	September 1887	"
Lottie E. Stearns . . .	620	April . . . 1874	"
Annie A. Early . . .	550	September 1889	"
James W. Applebee . . .	1,900	November . 1890	Adams.
Abbie I. Fiske . . .	700	September 1882	"
Myra I. Billings . . .	620	February . 1889	"
Gertrude G. Tewksbury	620	September 1882	"
Mary A. Wellington . .	620	April . . . 1884	"
Angelia A. Smith . . .	620	September 1883	"
Herbert F. Sylvester . .	1,900	September 1882	Claflin.
Annie C. Merritt . . .	700	November . 1886	"
Rosa E. Searle . . .	620	November . 1890	"
Isabelle W. Gladwin . .	550	September 1889	"
Ellen S. Tewksbury . . .	620	September 1884	"
Lilian M. Hobart . . .	500	September 1890	"

TEACHERS AND SCHOOLS.—(Continued.)

Names.	Salary.	Beginning of Service.	Name of School.
Levi F. Warren	\$1,900	September 1869	Peirce.
Sarah A. Warren	700	April . . 1872	"
Nora Taft	620	September 1887	"
Emily F. Wheeler	620	November . 1888	"
Eliza E. Simmons	620	April . . 1860	"
Helen H. Rogers	620	September 1888	"
M. Alice Warren	700	January . 1883	Davis
Ada P. Zeigler	620	September 1889	"
Alice M. Wormwood	620	September 1887	"
Sarah E. Foster	620	May . . . 1863	"
Elizabeth F. Paddock . . .	700	September 1880	Franklin.
Alice M. Nelson	620	September 1888	"
Clara H. Thompson	620	October . 1885	"
Margaret A. Mague	620	September 1882	"
Calista S. Wood	700	September 1874	Barnard.
Anna G. Swain	620	September 1871	"
Susan E. Copeland	620	September 1872	"
Lizzie F. Jones	620	September 1874	"
John O. Godfrey	1,900	April . . 1886	Williams.
Helen S. Tolman	700	September 1883	"
Caroline Y. Wentworth . . .	620	September 1889	"
Kate A. Glynn	620	November . 1889	"
Florence L. Wilson	620	November . 1888	"
Dora A. Allen	620	September 1883	"
Edith A. Matteson	620	September 1887	"
Ann B. Smith	620	September 1874	"
Luther E. Leland	1,900	May . . . 1858	Hamilton.
Ellen M. Leland	620	February . 1870	"
Blanche E. Henshaw	550	September 1889	"
Orissa M. Baxter	620	October . 1890	"
Charles E. Hussey	1,900	April . . 1884	Prospect.
Martha L. Perkins	700	May . . . 1866	"
Ella F. Crooker	620	November . 1876	"
Lucy A. Haywood	620	September 1883	"
Linda M. Nickelson	620	September 1888	"
Mary P. Fanning	620	October . 1873	"
George A. Moore	1,900	September 1882	Hyde.
Margaret E. Atkins	700	September 1890	"
Kate S. Chapman	620	October . 1890	"
Gertrude Blackmar	620	December . 1882	"
N. Grace Gould	620	February . 1885	"
Carrie C. Deuel	620	January . 1891	"
William A. Spinney	2,000	September 1879	Mason.
Ellen S. Baker	700	April . . 1884	"
Mrs. Della E. Noyes	620	December . 1887	"
Maria F. Wood	620	September 1875	"
Mary Tenney	620	September 1873	"
Georgia Bucknam	620	June . . 1886	"
Roberta J. Hardie	620	September 1885	"

TEACHERS AND SCHOOLS.—(Concluded.)

Names.	Salary.	Beginning of Service.	Name of School.
Annie R. Smith	\$500	April . . 1891	Mason.
Mary E. Mason	700	September 1885	Rice.
Margaret Martin	620	September 1881	"
Adelaide L. Thompson .	620	October . 1886	"
Jennie P. Baker	620	September 1887	"
Helen A. Davis	700	April . . 1878	Thompsonville.
Theodora A. Chase . . .	620	September 1881	Oak Hill.
Harriet E. Colburn . . .	620	November . 1890	Waban.
<i>Special Instructors.</i>			
George H. Benyon	400	October . 1887	Military Drill.
Horace M. Walton	1,500	September 1885	Vocal Music.
Ida L. Collins	900	September 1889	Drawing.
Alice E. Macomber	320	November . 1889	"
Jennie E. Ireson	500	September 1879	Calisthenics.
Julia Grant	450	June . . 1883	Sewing.
Ellen L. Bond	450	June . . 1883	"
Sarah L. Dix	225	October . 1886	"
Martha L. Dix	480	September 1888	Special assistant.

JANITORS.

HIGH SCHOOL.

JOHN CUMMINGS, Murray Street, Newtonville.
MICHAEL F. POWERS, Minot Place, Newtonville.

BIGELOW AND UNDERWOOD SCHOOLS.

JAMES R. GREENE, 201 Washington Street, Newton.

LINCOLN SCHOOL.

HONORAH SWEENEY, Pearl Street, Newton.

ELIOT AND JACKSON SCHOOLS.

MARY WELCH, West Street, Nonantum.

ADAMS SCHOOL.

MARY A. DELANEY, West Street, Nonantum.

CLAFLIN SCHOOL.

JOHN DORNEY, Mill Street, Newtonville.

PEIRCE SCHOOL.

GEORGE CROSS, Curve Street, West Newton.

DAVIS SCHOOL.

JAMES H. PROCTOR, Prospect Street, West Newton.

FRANKLIN SCHOOL.

BRIDGET COX, River Street, West Newton.

BARNARD SCHOOL.

JOHN WOODY, Prospect Street, West Newton.

WILLIAMS SCHOOL.

MARTIN WALSH, Melrose Street, Auburndale.

HAMILTON SCHOOL.

JAMES H. BOIT, Grove Street, Newton Lower Falls.

WABAN SCHOOL.

MICHAEL CUMINGS, Waban.

PROSPECT SCHOOL.

JOSHUA L. RANDALL, Eliot Street, Newton Upper Falls.

HYDE SCHOOL.

GEORGE M. GEYER, Boylston Street, Newton Highlands.

MASON AND RICE SCHOOLS.

ALBERT C. MARSTON, Parkhurst Street, Newton Centre.

THOMPSONVILLE SCHOOL.

JOHN A. HAHN, Florence Street, Newton Centre.

OAK HILL SCHOOL.

WILLIAM E. WISWALL, Dedham Street, Oak Hill.

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CITY OF NEWTON.

REPORT

OF THE

WATER BOARD

FOR THE YEAR ENDING DECEMBER 31, 1891.



NEWTON UPPER FALLS:
FANNING PRINTING CO.
1892.

THE NEWTON WATER WORKS.

ORGANIZATION FOR 1892.

WATER BOARD.

HON. WILLIAM P. ELLISON, *President.*

EDMUND T. WISWALL.

ADAMS K. TOLMAN.

Alderman WM. F. HARBACH.

Councilman GEO. P. STAPLES.

J. C. WHITNEY, *Water Registrar and Clerk of Board.*

ALBERT F. NOYES, *Engineer of Board.*

H. NELSON HYDE, *Superintendent.*

PAST BOARDS OF GOVERNMENT OF THE
NEWTON WATER DEPARTMENT.

CONSTRUCTING COMMISSION.

1875-8.

Hon. R. M. PULSIFER.

Col. F. J. PARKER.

Hon. R. R. BISHOP.

WATER COMMITTEES OF CITY COUNCIL.

1878.

Aldermen OTIS PETTEE and E. W. WOOD.

Councilmen J. WESLEY KIMBALL, NATHAN MOSMAN and G. E. PIKE.

1879.

Aldermen G. D. ELDRIDGE and E. R. SECCOMB.

Councilmen J. WESLEY KIMBALL, NATHAN MOSMAN and EDWARD SAWYER.

1880.

Aldermen WILLIAM P. ELLISON and J. WESLEY KIMBALL.

Councilmen NATHAN MOSMAN, GEORGE E. WALES and E. W. CATE.

1881.

Aldermen WILLIAM P. ELLISON and J. WESLEY KIMBALL.

Councilmen NATHAN MOSMAN, E. W. CATE and H. A. INMAN.

1882.

Aldermen E. W. CATE and J. WESLEY KIMBALL.

Councilmen DAVID T. BUNKER, ALSON A. SMITH and FRED W. FREEMAN.

WATER BOARDS.

1883.

EDWARD W. CATE, FRANCIS J. PARKER, FRANCIS A. DEWSON.
Alderman J. WELSEY KIMBALL, Councilman FRED. W. FREEMAN.

1884.

EDWARD W. CATE, FRANCIS J. PARKER, FRANCIS A. DEWSON.
Alderman NOAH W. FARLEY, Councilman ALBERT F. UPTON.

1885.

EDWARD W. CATE, FRANCIS A. DEWSON, CHARLES FRED. CREHORE.
Alderman NOAH W. FARLEY, Councilman ALBERT F. UPTON.

1886.

EDWARD W. CATE, FRANCIS A. DEWSON, CHARLES FRED. CREHORE.
Alderman GEORGE PETTEE, Councilman GEORGE D. DIX.

1887.

EDWARD W. CATE, FRANCIS A. DEWSON, CHARLES FRED. CREHORE.
Alderman GEORGE PETTEE, Councilman GEORGE D. DIX.

1888.

EDWARD W. CATE, FRANCIS A. DEWSON, CHARLES FRED. CREHORE.
Alderman GEORGE PETTEE, Councilman EDMUND T. WISWALL.

1889.

EDWARD W. CATE, FRANCIS A. DEWSON, LEVI C. WADE.
Alderman WILLIAM F. HARBACH, Councilman EDMUND T. WISWALL.

1890.

EDWARD W. CATE,* FRANCIS A. DEWSON,† WILLIAM P. ELLISON, LEVI C.
WADE, EDMUND T. WISWALL.
Alderman WILLIAM F. HARBACH, Councilman F. M. CREHORE.

1891.

WILLIAM P. ELLISON, LEVI C. WADE,‡ EDMUND T. WISWALL,
ADAMS K. TOLMAN.
Alderman WILLIAM F. HARBACH, Councilmen GEO. F. CHURCHILL,

*Resigned June 30.

†Resigned December 15.

‡Died March 21.

REPORT OF THE WATER BOARD

OF THE CITY OF NEWTON.

WATER BOARD OFFICE, CITY HALL, }
WEST NEWTON, January 22, 1892. }

*To His Honor the Mayor and the City Council of the City of
Newton:*

The Water Board in compliance with the requirements of Ordinance XX, herewith submits its report for the year ending December 31, 1891.

Membership of the Board.

The following changes have been made in the membership of the Board. In January, Councilman George F. Churchill succeeded Mr. F. M. Crehore who became a member of the Board of Aldermen, and in April Mr. A. K. Tolman was appointed to fill the vacancy caused by the death of Hon. Levi C. Wade.

The past year has been one of great activity in the Water Department; fifty meetings of the Board have been held, and at each not less than three members were present, so that no meeting was adjourned for lack of a quorum.

Mains and Services.

About eight and a half miles of main pipe were laid, considerably more than in any year since the works were delivered to the city by the Commissioners appointed to construct them. 265 services were laid, the largest number in any one year, with but three exceptions since that date.

The total length of main pipe laid is about 102 miles with 4,705 services, being only forty-six per mile. It is doubtful if any other city with the same population has nearly as many miles of mains or so few services per mile.

This is attributable to two causes.

The railroad runs on each side of the city, and naturally the most thickly settled portions are around the various stations, while through the centre the land is but sparsely built upon, yet the mains have to be carried through even if the water takers are but few in number.

During the past few years a desire has been manifested to build into new territory, each new house being quite a distance beyond the last, thus necessitating long extensions of mains.

Probably within a few years, however, as the population of the city increases and land becomes more valuable, both of these disadvantages will be overcome, houses will be built away from the stations and into the centre and also more closely together.

Receipts and Expenditures.

There was expended the past year for construction \$108,485.23, and for maintenance \$13,975.02.

The total receipts from water rates were \$75,260.98.

The increase in income is very satisfactory and but for the large increase in the interest account, consequent upon the expenditures for conduit, reservoir and long extensions of mains, the deficit would have been very small.

Oak Hill District.

The City Council of 1890 authorized the laying, without guaranty, of 19,436 feet of eight and six inch pipe at an estimated cost of \$29,000, for the purpose of bringing the mains within reasonable distance of the residents of Oak Hill.

Work was commenced upon the extension April 29, and completed November 17. The actual cost of the extension is \$27,772.61, being \$1,227.39 less than the estimate.

Already two extensions under the usual guaranty have been made and doubtless others will be petitioned for the coming year.

New Reservoir.

The new reservoir has been completed within the estimates, although its capacity is about one-fifth more than was contemplated when the appropriation was made.

It was filled for the first time August 8, and has since been in constant use, the water in the old reservoir being entirely cut off from the mains.

The expectations of the Engineer regarding the reservoir have been fully realized; the water reaches the height anticipated and the pressure has been increased in all parts of the city as much as was hoped for. During the summer the water will be much cooler than when exposed to the sun's rays as it was in the old reservoir.

Waban Hill, upon the top of which the reservoir is built, is a delightful spot; from its summit an extensive view can be obtained of beautiful scenery in every direction; it is already much frequented, and as its beauties become better known the number who visit it will undoubtedly be largely increased.

At present the grounds around the reservoir are in a very unsightly condition; without much expense they could

be graded, grassed over and a driveway built to connect them with the street, thus adding greatly to the attractiveness of the place.

This work was not provided for in the estimates for the reservoir as it properly forms no part of it.

Indicators.

A float in the reservoir connected by wire with an indicator in the pumping station and with another having a recording dial attached, in the office of the Board at the City Hall, keeps both the Engineer and the Water Registrar informed of the height of the water in the reservoir. This is operated by electricity, has worked successfully and proved of great value.

Increased Pressure.

When it was decided to build a reservoir upon the summit of Waban Hill fifty-five feet higher than the old, many were fearful that the pipes were not sufficiently strong to sustain the increased pressure; experience has shown that they were unnecessarily alarmed, as no trouble whatever has occurred.

New Engine and Boilers.

The new pumping engine has been set up and is being used experimentally by the builders, The Geo. F. Blake Mfg. Co. It has already demonstrated that there will be a very considerable saving in the consumption of coal.

One of the new boilers is in position and is being connected with the pumps; the other boiler it is confidently expected, will be ready before many weeks.

In order to accommodate these boilers an enlargement of the boiler house has been made.

Supply.

It is a subject for congratulation that notwithstanding the excessively dry summer and fall which has caused so many cities to suffer from a lack of water and obliged them to resort to various expedients to increase their supply, Newton has been exempt.

Our supply has been abundant, the new conduit has never yet been drawn upon for its full capacity and consequently it has not been necessary that any unusual measures should be taken to limit the consumption or to prevent waste.

Consumption.

The average daily consumption of water in 1888 was 703,491 gallons, in 1889, 853,435 gallons, in 1890, 985,396 gallons, and in 1891, 1,067,294 gallons.

An unknown but very large quantity of water was used the past year in building the sewers which might possibly explain the increase in consumption, but no such reason could be assigned for the two previous years. The only plausible explanation appeared to be that some large leaks in the mains existed.

Soon after the new reservoir was completed and the mains subjected constantly to the pressure from it, a few leaks became apparent which evidently had existed for a long time; they were not sufficient however to account for all the water that evidently was running to waste, therefore a systematic examination was made of all the mains throughout the city; several quite large leaks were found and stopped. It is thought that now but very little if any water is lost from this cause.

Meters.

The provisions of Ordinance XX, requiring water to be supplied by meter became operative March 1, 1887. It has

now been well tested and is considered by the citizens a much more satisfactory and equitable manner of charging for water than was the former method by rates.

Supply Mains.

The plan of Edward Sawyer, Esq., the engineer who constructed the works, provided that the north side of the city should be supplied with water by twelve inch mains laid in Chestnut, Walnut and Centre streets and Waverley avenue; these have all been laid either by the Commissioners or since, with the exception of the one in Chestnut street, which is incomplete; during the past year this has been extended 1,092 feet so that now only a space of about 2,000 feet intervenes between the ends; when this is filled the plan contemplated by Mr. Sawyer will be complete so far as relates to the supply for the north side and the circulation between the two sides of the city.

Early in the year the Board availed of an opportunity to purchase upon exceptionally favorable terms a large platform scale which has been placed in the pumping station.

Since that time all proposals for the furnishing of coal for the works have contained a provision that it shall be weighed upon this scale, thus preventing any possible loss in weight by shrinkage during transportation.

The unusually long extension of main pipe to supply the Oak Hill district and the remoteness from any blacksmith's shop, offered an excellent opportunity of testing the experiment of hiring a smith, providing him with a movable forge and have him do the work upon the ground which has heretofore been done in the shops, involving considerable expense for transportation, besides delay, even if the cost of doing the work was no more.

The result has been entirely satisfactory in every respect and will undoubtedly be repeated in the future.

Teaming by Contract.

Another experiment was that of contracting for the carting of all pipe which might be required during the year.

Heretofore the custom had prevailed of employing, whenever wanted, such parties as could most easily be obtained at the time. This was open to several objections: that favoritism might be shown, although it never had been; that the prices charged might be excessive; that pipe might be cracked through handling by inexperienced persons, etc.

It was thought that if one party had the contract to do all the work he could afford to do it for less than if he was only occasionally employed; that it would be an inducement to provide himself with the proper equipment for expeditiously and safely handling the pipe and that his employes would become so accustomed to the work that but little damage would be done, therefore the Board invited proposals for carting all pipe, etc., for the year ending December 31, 1891, from quite a number of parties.

The contract was awarded to the lowest bidder, Messrs. J. Cotter & Son, who have faithfully and satisfactorily performed it in every respect, while the cost to the city has been considerably less than on previous years.

Land Settlements.

Considerable progress has been made in settling with owners of land in Needham taken by the city for an increased water supply.

Many of them have been paid for their land and it is expected that an equitable settlement can be made with the remaining owners during the coming year.

Respectfully submitted,

NEWTON WATER BOARD,

By WM. P. ELLISON, *President.*

Details of Extensions made in 1891.

STREET.	Ward.	LOCATION.	LENGTH OF EACH SIZE IN FEET.					Gates.	Hydrants.	Cubic Yards Rock.
			12 in.	10 in.	8 in.	6 in.	4 in.			
Adams Avenue	3	Extended east . . . . .	..	..	..	194	..	..	..	79
Alpine	3	From Highland Avenue, west	..	..	..	277	..	..	..	..
Alpine	3	Extended east to Forest Avenue	..	..	..	117	..	..	1	..
Ashton Avenue	6	From Homer, north . . . . .	..	..	..	448	..	..	1	..
Berkeley	3	From Prince, west . . . . .	..	..	441	..	..	..	..	25
Boylston	5	Extended west to Dudley . . . . .	..	..	..	465	..	..	..	189
California	1	Extended east . . . . .	..	..	..	176	..	..	1	..
California	2	From Bridge, west . . . . .	..	730	169	..	..	..	..	17
Carlton Road	5	From Waban Avenue, north . . . . .	..	..	..	..	..	2	1	..
Centre, off	6	From Centre, west . . . . .	..	..	..	..	296	1	..	..
Chandler Place	5	From Elliot, south . . . . .	..	..	..	660	..	1	1	..
Cheney	5	From Mechanic, west . . . . .	..	..	..	388	..	1	1	31
Cheney, off	5	From Cheney, north . . . . .	..	..	..	..	251	..	..	42
Chester	5	North to Hillside . . . . .	..	..	..	..	26	1	..	..
Chestnut	3	Extended south to Homer	1,401	..	..	..	..	..	1	109
Chestnut Hill Road	6	Extended north . . . . .	..	..	..	498	..	..	1	..
Cleveland Road	3	From Waltham, west . . . . .	..	..	..	268	..	1	..	..
Crafts	2	From Lothrop, east . . . . .	..	..	..	187	..	1	..	..
Crafts	2	From Clinton, west . . . . .	..	..	..	134	..	..	..	..
Crescent	1	To connect . . . . .	..	..	..	194	..	..	..	..
Crescent	1	To connect . . . . .	..	..	..	433	..	1	1	..
Cushing	6	Extended east . . . . .	..	..	..	103	..	..	1	..
Dalby	1	Extended south . . . . .	..	..	..	4 4	..	..	1	..
Dedham	5	From Parker, west . . . . .	..	..	807	..	..	..	1	10
Dedham	5	From Parker to Nahanton . . . . .	..	..	4,415	..	..	3	4	114
Dudley	5	From Jackson to Greenwood . . . . .	..	..	4,181	..	..	2	1	323

Edinboro	2	Extended west . . . . .	..	..	123	..	..	..	..
Exeter	3	From Berkeley, south . . . . .	..	..	184	..	..	..	..
Fairview	7	Extended north . . . . .	..	..	167	..	..	..	..
Florence	6	From Boylston, east . . . . .	..	..	337	..	1	..	8
Forest Avenue	3	Extended south to Alpine . . . . .	..	..	..	146	..	..	65
Greenwood	5	From Dedham to Dudley . . . . .	..	..	4,001	..	2	..	369
Greenwood Avenue	3	Extended north . . . . .	..	..	..	156	..	..	..
Griffin Avenue	5	From Norman Road, north . . . . .	..	..	297	..	..	1	..
Hale	5	Extended south . . . . .	..	..	350	..	..	..	..
Hillside	5	From Chester, east . . . . .	..	..	382	..	1	1	..
Homer	6	Extended west . . . . .	..	..	123	..	..	..	..
Hunnewell Avenue, off	7	From Hunnewell, north . . . . .	..	..	..	..	1	..	..
Hyde	5	Extended north . . . . .	..	..	384	..	..	..	30
Jackson	6	From Dudley to Parker . . . . .	..	..	208	..	..	..	80
Jewett	1	Extended north	5	..	2,137	..	1	3	..
Kensington	3	From Watertown, north . . . . .	..	..	..	12	..	..	..
Kingsbury, off	6	From Kingsbury to Hammond . . . . .	..	..	659	..	..	1	..
Kingsbury, off	6	Extended west . . . . .	..	..	1,370	..	1	..	31
Lawson	3	From Highland, south . . . . .	..	..	184	..	1	..	..
Lenox	3	From Otis, south . . . . .	..	..	408	..	..	..	22
Lincoln Court	2	Extended west . . . . .	..	..	241	..	1	1	..
Linder Terrace	7	From Hunnewell, south . . . . .	..	..	..	147	..	..	..
Mill	2	Extended east	205	..	205	..	1	..	9
Murray	2	Extended south . . . . .	..	..	..	..	..	..	..
Nahanton	5	From Dedham, west . . . . .	..	..	241	..	47	..	..
Nehoiden Road	5	From Waban Avenue, north . . . . .	..	..	619	..	1	1	5
Norman Road	5	From Hyde to Griffin Avenue . . . . .	..	..	478	..	1	..	18
Orient	6	From Ashton, north . . . . .	..	..	503	..	1	..	..
Parker	6	From Boylston, north . . . . .	..	..	777	..	1	..	45
Parker	5	From Boylston to Dedham . . . . .	..	..	3,377	..	1	1	105
Pine	4	Extended west . . . . .	..	..	742	..	..	1	..
		<i>Carried forward</i>	1,611	730	19,448	1,081	32	30	1786

Details of Extensions made in 1891. — (Concluded.)

STREET.	Ward.	LOCATION.	LENGTH OF EACH SIZE IN FEET.								Gates.	Hydrant.	Cubic Yards Rock.
			24 in.	20 in.	12 in.	10 in.	8 in.	6 in.	4 in.				
Ridge Avenue . .	6	<i>Brought forward</i> . . .	..	..	1,611	730	19,448	14,637	1,081	32	30	1786
River	3	Extended east . . . .	..	..	..	..	..	73	..	..	..	..
Seaverns	4	Extended south . . . .	..	..	..	..	448	..	..	..	..	..
Sewall	3	From Melrose, west . .	..	..	..	..	..	408	2	..	1	16
Stevenson	7	From Prince, west . . .	..	..	..	..	..	376	..	..	1	30
Trowbridge Avenue	2	From Hunnewell Avenue, north	..	..	..	..	..	534	..	1	1	..
Waban Avenue . .	5	Extended east . . . .	..	..	..	..	..	145	..	..	..	..
Walker	2	From Beacon to Carleton	..	..	..	946	2,298	..	..	3	1	..
Waltham	3	Extended north . . . .	..	..	..	..	..	36	..	..	..	..
Watertown	3	Extended north . . . .	..	..	..	..	..	410	..	..	..	..
Webster	4	Extended west . . . .	..	..	..	..	..	607	..	2	..	..
At Reservoir . .	6	Extended west . . . .	..	..	..	..	..	277	..	..	..	..
			192	1,569	..	..	..	..	..	..	..	..
Totals,			192	1,569	1,611	1,676	22,194	17,503	1,083	38	34	1832	

Total length of Main Pipe laid during year 1891, 45,828 feet, or 8 7-10 miles.

Details of Services Laid in 1891.

MONTH.	IRON PIPE.						LEAD PIPE.						Total.	
	2 in.		1 in.		¾ in.		1 in.		¾ in.		½ in.			
	No.	Length in Feet.	No.	Length in Feet.	No.	Length in Feet.	No.	Length in Feet.	No.	Length in Feet.	No.	Length in Feet.	No.	Length in Feet.
January . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..
February . . .	..	..	3	77	..	..	2	54	2	137	..	..	7	268
March . . .	..	..	1	24	..	..	..	..	9	354	1	26	11	404
April . . .	..	..	8	612	..	..	1	39	9	472	..	..	18	1,123
May . . .	..	..	10	564	4	286	1	18	9	739	..	41	24	1,648
June . . .	..	..	17	523	..	..	2	218	15	956	..	..	35	1,711
July . . .	..	..	7	422	..	..	..	..	15	882	..	..	24	1,339
August . . .	1	106	13	465	..	7	1	61	7	554	2	39	26	1,424
September. . .	1	67	12	372	..	..	..	..	7	543	1	37	23	1,049
October . . .	2	883	7	206	..	..	..	..	14	750	1	32	25	1,892
November . . .	..	..	18	809	1	11	1	96	20	853	..	131	42	2,016
December . . .	..	181	19	661	..	..	..	..	8	651	3	115	30	1,662
Totals . . .	4	1,237	115	4,755	5	304	5	393	13	555	115	6,891	265	14,536

Total iron, 6,276 feet. Total lead, 8,260 feet. 265 new services, 14,536 feet. 29 renewals, 1,168 feet.

Supply Pipe Laid in 1891.

STREETS.	Ward.	LOCATION.	LENGTH IN FEET.		
			2 in.	1½ in.	1 in.
Off Adams . .	2	From Adams .	..	155	35
Rustic . . .	2	Extended north .	190	..	..
Off Cheney . .	5	From Cheney .	77	..	..
Jewett . . .	1		7	2	..
Total . .			274	157	35

Number and Length of Services Laid to Date.

DATE OF LAYING.	Number.	Length in feet.
Laid to January, 1878	1,497	104,065
Laid during 1878	188	15,449
Laid during 1879	232	13,670
Laid during 1880	228	18,039
Laid during 1881	267	14,675
Laid during 1882	169	10,904
Laid during 1883	159	11,709
Laid during 1884	179	12,113
Laid during 1885	215	12,367
Laid during 1886	298	14,748
Laid during 1887	335	16,457
Laid during 1888	211	10,378
Laid during 1889	225	12,892
Laid during 1890	237	11,795
Laid during 1891	265	14,355
Total	4,705	293,616

Description of Main Pipe Laid to December 31, 1891.

DATE OF LAYING.	LENGTH OF DIFFERENT SIZES IN FEET.								TOTAL.
	24 in.	20 in.	16 in.	12 in.	10 in.	8 in.	6 in.	4 in.	
Laid previous to January, 1878	761	18,012	2,457	58,932	..	53,321	116,815	23,235	273,533
Laid during 1878	..	..	..	..	..	180	8,391	2,085	10,656
Laid during 1879	..	..	..	1,083	..	947	13,157	3,122	18,300
Laid during 1880	..	..	..	754	..	1,484	9,728	4,053	16,019
Laid during 1881	..	..	..	..	..	484	7,449	2,483	10,416
Laid during 1882	..	..	..	..	..	1,211	10,416	2,605	14,232
Laid during 1883	..	..	..	1,242	..	2,656	7,941	2,304	14,143
Laid during 1884	..	..	..	242	..	..	8,951	983	10,176
Laid during 1885	..	..	..	850	..	2,082	11,047	3,626	17,605
Laid during 1886	..	..	..	1,187	..	4,213	13,938	2,826	22,164
Laid during 1887	..	..	..	2,228	..	6,110	20,927	2,787	32,052
Laid during 1888	..	..	..	754	..	5,023	12,119	1,222	19,118
Laid during 1889	..	..	..	2,194	..	5,122	9,920	550	17,786
Laid during 1890	28	..	..	779	884	4,085	10,904	1,304	17,984
Laid during 1891	192	1,569	..	1,611	1,676	22,194	17,503	1,083	45,828
Totals	981	19,581	2,457	71,856	2,560	109,112	279,206	54,268	540,021

Total length, 102 miles.

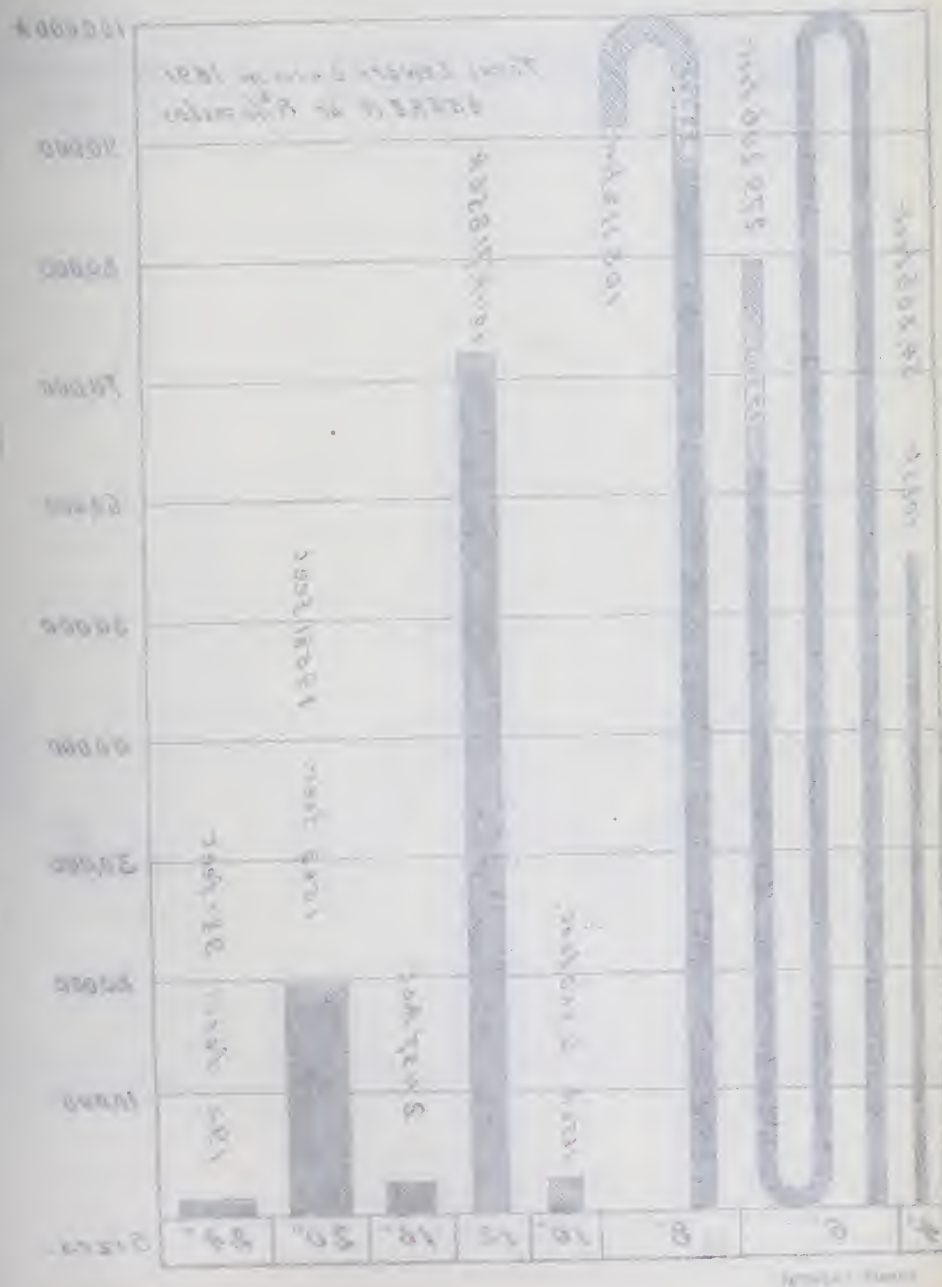
Meters Set.

The following meters were set during 1891: Hersey, 262; Nash, nine; Crown, five; Crown A., five; Thomson, two; Disk, one. There are now in use throughout the city 3,269 meters, 2,231 of which are owned and rented to the water-takers by the department. The meters now in use are classified as follows:

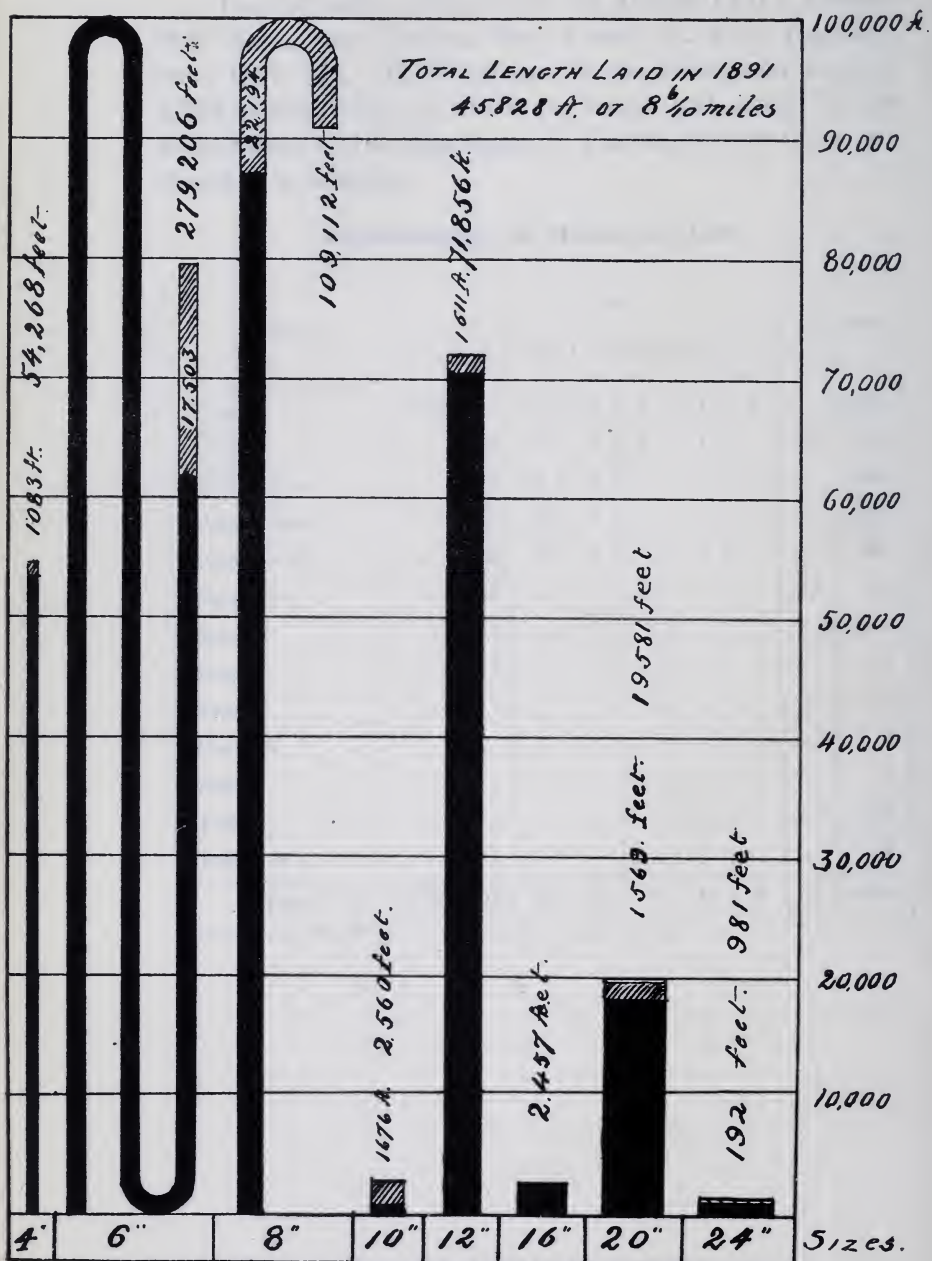
Classification of Meters in Use.

PATTERN.	SIZES.								TOTAL.
	$\frac{1}{2}$ in.	$\frac{3}{8}$ in.	$\frac{3}{4}$ in.	1 in.	$1\frac{1}{2}$ in.	2 in.	3 in.	4 in.	
Crown	1,992	..	24	28	2	11	2	..	2,059
Hersey . . . . .	..	605	1	4	1	1	..	1	613
Worthington . . .	..	296	6	3	..	..	1	..	306
Union Piston . .	..	181	16	1	..	..	..	..	198
Union Rotary . .	..	53	2	4	..	1	..	..	60
Thomson . . . . .	..	12	..	..	..	..	..	..	12
Spooner . . . . .	..	1	..	..	..	..	..	..	1
Desper . . . . .	..	2	..	..	..	..	..	..	2
Frost . . . . .	..	1	..	..	..	..	..	..	1
Crown A	5	..	..	..	..	..	..	..	5
Nash	9	..	..	..	..	..	..	..	9
Disk . . . . .	..	1	..	..	..	..	..	..	1
Indicators . . . .	..	..	..	..	..	..	..	..	2
Total	2,006	1,152	49	40	3	13	3	1	3,269

Letters on Manus 1821 to Dec 1821 100 miles



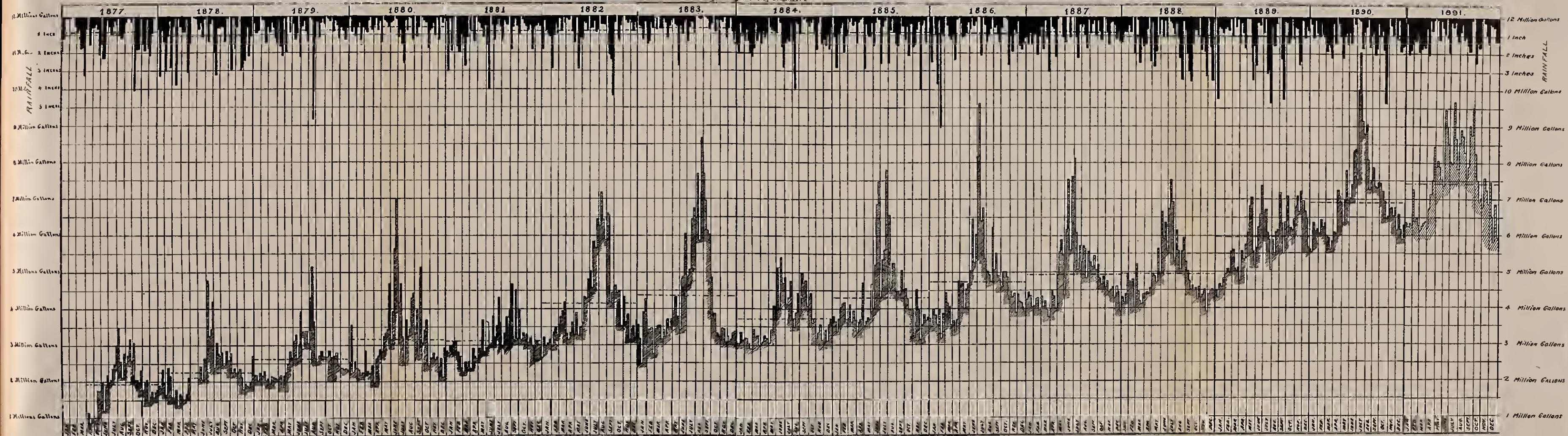
LENGTHS OF MAINS LAID TO DEC. 31 1891 102 miles.

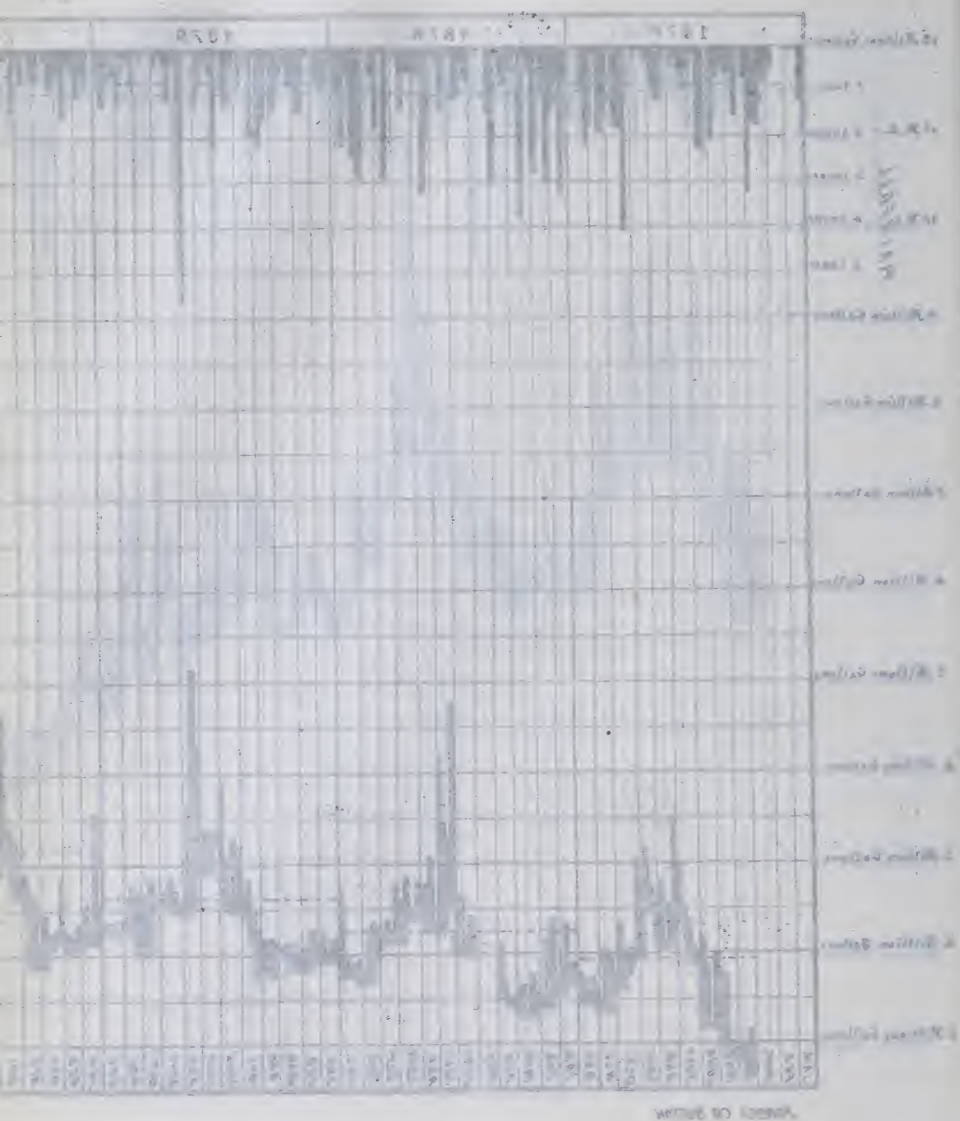


NEWTON WATER WORKS.

DIAGRAM SHOWING WEEKLY CONSUMPTION AND RAINFALL FROM 1877 TO 1890 INCLUSIVE.

Compiled by the City Engineer.





Water Pumped and Consumed.

There were pumped during 1891, 388,753,278 gallons of water, about 29,266,000 gallons in excess of the quantity pumped in 1890.

The consumption for the year averaged 1,067,294 gallons per day, ranging from 676,140 gallons, the minimum, April 2, to 1,923,535 gallons, the maximum consumption, June 15. The accompanying tables show the consumption by months since 1878.

Daily Average Consumption of Water

MONTH.	1878.	1879.	1880.	1881.	1882.	1883.
January . . .	286,234	309,645	386,524	406,212	445,257	526,943
February . . .	274,792	300,275	341,920	397,346	470,841	481,437
March . . .	227,484	300,048	325,996	354,168	541,149	503,804
April . . .	221,508	297,850	381,002	392,617	477,540	494,281
May . . .	294,278	388,671	514,382	466,234	510,951	568,500
June . . .	369,844	455,924	719,348	475,573	646,752	719,838
July . . .	557,446	488,733	515,623	520,529	764,985	818,209
August . . .	386,916	502,418	540,408	510,214	944,486	1,042,608
September . .	374,517	387,366	530,826	550,974	712,994	882,348
October . . .	343,431	370,238	419,474	467,155	601,595	511,039
November . .	304,208	361,446	387,683	440,689	520,945	482,570
December . .	297,890	336,777	364,196	426,752	501,669	460,994
Daily average .	328,212	374,949	452,032	450,705	594,930	624,381
Maximum . .	700,000	650,000	858,000	842,000	1,370,000	1,394,000

from 1878 to 1891, inclusive.

1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
449,079	532,659	533,558	619,418	645,101	655,433	837,688	899,047
444,011	563,741	531,434	592,530	655,412	724,710	878,191	943,004
473,193	466,218	570,673	580,902	617,863	719,927	817,567	898,310
451,722	543,734	575,883	590,590	635,638	770,102	927,997	1,025,572
502,412	566,650	645,267	763,109	700,816	900,353	980,583	1,122,862
679,588	835,919	840,520	896,608	871,010	914,089	1,091,467	1,193,511
626,404	870,227	1,052,536	905,024	924,756	878,551	1,348,912	1,208,585
560,032	660,262	742,347	769,210	811,153	831,641	1,117,275	1,222,871
663,817	673,137	716,465	760,308	688,252	807,418	1,054,504	1,185,890
552,219	580,189	678,351	692,127	641,758	873,851	962,662	1,093,592
476,116	529,666	611,504	653,907	612,405	1,081,677	928,517	1,015,225
497,075	532,023	592,510	620,689	634,414	1,076,158	870,981	927,393
532,804	614,968	675,298	703,702	703,491	853,435	985,396	1,067,294
962,600	1,387,000	1,997,000	1,490,000	1,419,000	1,412,000	1,825,623	1,923,535

Receipts for the Year 1891.

Annual rates	\$20,757 12
Meter rates	54,503 86
Service and meter account	5,546 88
Construction account	4,904 86
Meter rent	4,005 78
	<hr/>
	\$89,718 50

Expenditures for the Year 1891.

MAINTENANCE ACCOUNT.

Amount of appropriation	\$14,000 00
Expense of registrar's office, including salary of registrar, inspector, travelling and miscellaneous expenses	\$3,010 17
Expense of superintendent's office, including salary of superintendent, pipe yard and miscellaneous expenses	1,998 77
Expense of pumping station, including salary of engineer and firemen, fuel, repairs, etc.,	5,378 61
Expense of maintaining reservoir	549 29
mains	1,028 67
hydrants	359 28
services	208 00
filter basin	549 44
stand pipes	145 98
city teams	413 58
	<hr/>
<i>Amounts carried forward,</i>	\$13,641 79
	<hr/>
	\$14,000 00

EXPENDITURES FOR THE YEAR.

25

<i>Amounts brought forward,</i>	\$13,641 79	\$14,000 00
Taxes	197 32	
Expense of maintaining water- ing troughs and drinking posts	80 12	
Tools	38 46	
Pumping station dwelling .	17 33	
	<hr/>	13,975 02
Balance unexpended		<hr/> \$24 98

SERVICE AND METER ACCOUNT.

Amount of appropriation . .		\$3,500 00
Expended for new services .	\$2,453 08	
Expended for maintaining ser- vice	435 67	
maintaining meters . .	267 64	
maintaining city teams .	289 87	
sundries	51 80	3,498 06
	<hr/>	<hr/>
Balance unexpended		\$1 94

REBATE ACCOUNT.

Amount of appropriation . .		\$500 00
Expended in rebates of water rates	\$41 08	
meter advance rates . .	209 78	
service and meter account	5 50	
meter rental	37 62	293 98
	<hr/>	<hr/>
Balance unexpended		\$206 02

CONSTRUCTION ACCOUNT.

DR.

Expended for mains	\$57,224 48
hydrants	1,734 00
services	8,612 94
water troughs and drinking posts	60 23
water-gates	750 76
tools and repairs	887 93
gate-boxes	1,537 12
meters, new	3,846 21
meter maintenance	250 25
new engine and foundation	6,863 92
pumping station improvements	333 16
blow offs	65 00
city teams	783 01
reservoir indicators	349 25
additional supply and covering	
old basin	5,562 89
land for additional supply	1,824 60
extension pumping station build-	
ing	181 63
new reservoir	22,522 71
	<hr/>
	\$113,390 09

CR.

By receipts during the year	\$4,904 86
	<hr/>
Net expenditure during 1891	\$108,485 23
Net expenditure to Dec. 31, 1890	1,416,697 44
	<hr/>
Net expenditure to Dec. 31, 1891	\$1,525,182 67

Comparative Statement of Receipts and Expenditures from 1878 to 1891, inclusive.

YEAR.	EXPENDITURES.				RECEIPTS.				DEFICIT.
	Interest.	Maintenance.	Services and Meters.	Total.	WATER RATES.		Services and Meters.	Total.	
					From City.	Other Sources.			
1878 . .	\$44,800 00	\$9,777 69	\$6,997 45	\$61,575 14	\$5,896 74	\$17,598 33	\$5,280 55	\$25,775 62	\$35,799 52
1879 . .	45,500 00	8,841 20	4,860 57	59,201 77	6,132 50	21,023 02	3,138 68	30,294 20	28,907 57
1880 . .	47,750 00	9,223 70	4,212 24	61,185 94	8,919 00	24,815 58	6,192 40	39,926 98	21,258 96
1881 . .	48,900 00	12,682 49	4,951 20	66,533 69	8,533 18	26,953 10	5,206 48	40,692 76	25,840 93
1882 . .	49,600 00	13,811 62	5,590 63	69,002 25	8,729 01	32,703 38	5,454 59	47,886 98	21,115 27
1883 . .	50,900 00	16,266 01	5,498 65	72,664 66	12,851 22	36,476 73	5,727 50	55,055 45	17,609 21
1884 . .	52,500 00	13,351 94	5,584 97	71,436 91	12,127 56	37,641 45	5,879 38	55,648 39	15,788 52
1885 . .	53,100 00	12,873 49	6,471 25	72,444 74	14,278 89	39,567 77	5,471 52	59,318 18	13,126 56
1886 . .	54,380 00	12,986 51	5,998 86	73,365 37	11,177 00	43,183 88	6,311 50	60,672 38	12,692 99
1887 . .	55,740 00	13,951 64	3,998 79	74,053 48	14,301 29	42,947 76	5,194 64	62,443 69	11,609 79
1888 . .	59,600 00	13,938 33	3,499 22	77,296 11	15,341 26	48,692 21	3,747 05	67,780 52	9,515 59
1889 . .	61,340 00	15,420 78	3,532 00	80,700 79	15,310 96	51,296 78	5,871 20	72,478 94	8,221 85
1890 . .	66,840 00	14,794 36	3,498 42	85,558 40	16,225 09	54,940 02	4,161 46	75,326 57	10,231 83
1891 . .	74,160 59	13,975 02	3,498 06	*91,927 65	17,350 77	57,910 21	5,546 88	80,807 87	11,119 79

Including \$293.98 rebates.

SUMMARY OF STATISTICS.

REPORT OF 1891.

In Accordance with the Recommendation of the New England Water Works Association.

NEWTON WATER WORKS, MIDDLESEX COUNTY, MASS.

Population by census of 1890	. . . . .	24,379
Date of construction	. . . . .	1876
By whom owned	. . . . .	City of Newton.
Source of supply	. . . . .	Filter basin on the bank of Charles River, fed by in- tercepted springs.
Mode of supply	. . . . .	Pumping through the mains to the reservoir making the reservoir a storage and regulating basin.

Pumping.

1. Builder of pumping machinery, H. R. Worthington
2. Description of coal used:—
 - (b.) Kind Bituminous
 - (c.) Size Broken
 - (d.) Brand Georges Creek, Cumberland
 - (e.) Price per gross ton delivered . . . \$4.90
 - (f.) Percentage of ash (estimated) . . . 6
 - (g.) Wood, price per cord 6.00

3. Coal consumed for the year, in pounds . . . 1,542,700
4. $\frac{\text{Wood consumed for the year, in lbs.}}{3} = \text{coal in lbs.}$. . . 13,000
5. Total fuel consumed for the year (3) + (4), 1,555,700
6. Total pumpage for the year, in gallons, . . . 388,753,278
7. Average static head against which pumps
work 199 6-10
8. Average dynamic head against which pumps
work
9. Number of gallons pumped per pound of
coal 252
10. Duty in foot-pounds, per 100 pounds of coal,
using following formula, reckoning only
coal actually used in pumping:
Duty = $\frac{\text{Gallons pumped (6)} \times 8.34 \text{ (lbs.)} \times 100 \times \text{dynamic head (8)}}{\text{Total fuel consumed (5)}} =$

**Cost of Pumping Figured on Pumping Station Expenses
of \$5,378.61.**

11. Per million gallons raised against average
dynamic head (8) into reservoir . . . \$13 83
12. Per million gallons raised one foot high
(dynamic)

**Cost of Pumping figured on Total Maintenance (see
Financial A A and B B), \$88,135.61.**

13. Per million gallons raised against average
dynamic head (8) into reservoir . . . \$226 71
14. Per million gallons raised one foot high
(dynamic)

FINANCIAL STATEMENT. MAINTENANCE ACCOUNT.

RECEIPTS.		EXPENDITURES.	
DIVISION I.			
<i>From Consumers:</i>			
A.	Water rates, domestic	\$55,645 29	
B.	Water rates, manufacturing	2,264 92	
C.	Services and meters put in and re- paired	5,421 05	
D.	Total from private customers	\$63,331 26	
<i>From Public Funds:</i>			
E.	Hydrant service, 642 at \$20	\$12,840 00	
F.	Horse troughs, 11, all metered	1,261 71	
G.	Street watering, metering rates	2,100 00	
H.	Public buildings, etc., all metered	1,025 77	
I.	Drinking posts, 10 at \$6	602 00	
J.	Public fountain, 1, metered	63 29	
K.	Service pipe, etc.	125 83	
L.	Total from public funds	17,476 60	
M.	Gross receipts from all sources	\$80,807 86	
DIVISION II.			
N.	From fixed rates, domestic	\$7,587 12	
O.	From meter rates, domestic	50,053 09	
P.	From meter rates, manufacturing	2,264 92	
Q.	Balance, deficit	\$59,905 13	
		11,119 79	
		\$91,927 65	
		EE.	TOTAL \$91,927 65

AA. Management and repairs, details on page 24 . . \$13,975 02
 BB. Interest on bonds 74,160 59
 CC. Service and meter account, details on page 25 . . 3,498 06
 DD. Rebate account 293 98

FINANCIAL STATEMENT.—Concluded.

CONSTRUCTION ACCOUNT.

RECEIPTS.		EXPENDITURES.	
From bonds issued	\$103,580 37	Expended for all purposes on this account, for details see page 27	\$108,485 23
From premium on bonds and material sold	4,904 86		
	<u>\$108,485 23</u>		<u>\$108,485 23</u>
Net cost of works to date	\$1,525,182 67	{ \$600,000, 6 per cent. 250,000, 5 per cent. 700,000, 4 per cent.	
Bonded debt at date	1,550,000 00		
Value of sinking fund at date	356,595 06		
Average rate of interest	4 9-10 per cent.		

Consumption.

1.	Estimated total population	26,000
2.	Estimated population on lines of pipe	25,200
3.	Estimated population supplied at date	24,700
4.	Total number of gallons consumed for year	389,562,509
5.	Passed through domestic meters, gallons	151,800,000
6.	Passed through manufacturing meters, gal- lons	13,300,000
7.	Average daily consumption in gallons	1,067,294
8.	Gallons per day, each inhabitant (1)	41
9.	Gallons per day, each consumer	43 2-10
10.	Gallons per day, each tap (distribution 22)	227

Distribution.

1.	Kind of pipe used	Cast iron
2.	Size	From 20 inches to 4 inches
3.	Extended	45,828 feet
4.	Discontinued	136 feet
5.	Total now in use	102 miles
6.	Cost of maintenance per mile, including re- pairs, blowing off, care of hydrants, etc.,	\$10.08
7.	Number of leaks discovered for year	16
8.	Small distribution pipes, less than 4 inches, total length	2 6-10 miles
9.	Hydrants added	34
10.	Number now in use	676
11.	Stop-gates added	40
12.	Number now in use	515
13.	Small stop-gates less than 4 inch	35
14.	Number of blow-off gates	215
15.	Range of pressure at centre for day and night (average) pounds	84

Services.

16.	Kind of pipe used	.	Lead, wrought and cast iron	
17.	Size	.	.	From 1-2 to 4 inches
18.	Extended	.	.	14,355 feet
19.	Discontinued	.	.	None
20.	Total now in use	.	.	55 6-10 miles
21.	Service taps added	.	.	265
22.	Number now in use	.	.	4,705
23.	Average length of service	.	.	62 4-10 feet
24.	Average cost of service	.	.	<div> <div></div> <div>Gross, \$29.42</div> <div>Net, 13.84</div> </div>
25.	Meters added	.	.	284
26.	Number now in use:			
	(a) Domestic	.	.	3,251
	(b) Manufacturing	.	.	18
				<div> <div>—</div> <div>3,269</div> </div>
27.	Motors and elevators added	.	.	1
28.	Number now in use	.	.	16
29.	Stand-pipes for street watering	.	.	66

REPORT OF THE ENGINEER TO THE WATER BOARD.

WEST NEWTON, December 31st, 1891.

To the Newton Water Board:

GENTLEMEN.—I herewith respectfully report that settlement for land taken for additional water supply, has been made with the following parties:

Charlotte A. K. & Sarah B. Bancroft .	8	acres.
J. Henry Bowers	4 18-100	"
John F. Bowers	5 79-100	"
Walter Bowers 2d	11 5-100	"
George H. & John C. Caldwell . .	3 28-100	"
George Colburn	6 3-10	"
Warren Colburn	6 3-10	"
Mary A. Damon	6 3-10	"
Philip Fanning	4 21-100	"
George H. Gay	10 79-100	"
Marietta Hunt	11 9-10	"
Benjamin C. & Henry C. Kimball .	22 4-10	"
Amasa Kingsbury	25 50-100	"
Dexter Kingsbury	14 18-100	"
George Lyman Kingsbury	62-100	"
George Otis Kingsbury	5 16-100	"
Isaac M. Kingsbury	9 80-100	"
Luther Kingsbury	13 2-10	"

William Morton	7	18-100	acres.
C. W. Morton & C. H. Dewing	64	100	"
Heirs of Thomas Orr	1	23-100	"
John E. Richards	25	100	"
Joseph H. Rowe	4	57-100	"
Thomas Ryan	2	11-100	"
Heirs of Thomas Ryan	7	52-100	"
Hannah B. Smith	3	78-100	"
Sarah B. Thomas	39	44-100	"
William R. Whitaker	1	2-10	"
John A. Wing	8	79-100	"
Artemas Wiswall	47	7-10	"
Denys Zirngiebel	3	94-100	"
<hr/>			
Making a total of	297	31-100	"

Negotiations have been entered into for a settlement for a large portion of the balance of the land taken, and there is every indication of an early adjustment of same.

A readjustment of the line of seizure has been suggested, which can be made to advantage to the city. By making the proposed change the city will acquire rights in certain desirable strips of land, and will abandon small areas of land of but little use for purposes of water supply.

Surveys for the suggested changes have been made, and the lines staked out.

In accordance with the instructions of the Board, plans for obtaining an additional water supply from the land taken for that purpose were made and accepted by the Board at their meeting held May 22d, 1891.

The plan contemplates the extension of the covered conduit from Kenrick street, nearly parallel to the river, to or near the Dedham line, with branch lines extending along the edges of the hard land. These extensions should be made from time to time as the increased daily use of water may require.

Filtering Conduit.

Plans, specifications and contracts, for placing gravel filling in the portion of the filtering basin in which the conduit was laid, and for grading and loaming over the new conduit, were prepared, and the following proposals received on February 13th, 1891, based upon the placing of 9,600 cubic yards of gravel filling, and for moving about 1,600 cubic yards of loam to or from the spoil banks, and grading slope and banks about the filtering conduit.

Canvass of Bids.

	Gravel per cubic yard.	Loam per cubic yard.	Amounts.
J. A. Cahill	18 cts.	26 1-2 cts.	\$2,152
T. F. Mague	19 "	23 "	2,192
M. McDonald	20 "	30 "	2,400
C. H. Hale	22 "	25 "	2,512

The contract was awarded to Mr. J. A. Cahill, of Newton Upper Falls, on February 17th, 1891, and the work performed in a satisfactory manner.

The gravel filling was taken from the gravel bank adjacent to the filtering basin on the city property. As the filling was placed, the stones were raked to the bottom of the dump, and retained near the filtering conduit; care also being taken to have the best gravel placed over it.

This filling was levelled off to a grade ten feet, and the manholes were finished off to a grade twelve feet above the axis of the conduit.

The embankment around the basin was replaced where damaged during the execution of the work.

The grounds along the line of the filtering conduit were graded and levelled off, making the surface everywhere on a gentle slope from the bank of the river across the conduit line to the high ground above; thus furnishing means for drainage of surface water to the river. The grading up of

several low places of considerable area required a large amount of extra filling.

Loam was spread, and grass seed sown over the line of the conduit from Kenrick street, to the end of the old basin, covering a length of 2,220 feet, and a width of from fifty feet to 150 feet.

The excavation for several hundred feet at the upper end of the conduit was made through several feet of muck, which was removed over a section fifteen or more feet wide, on each side of the conduit, and the space refilled with clean gravel or sand.

The following is a memorandum of the actual cost of the work :

For placing 10,906 cubic yards of gravel filling	
at 18 cents	\$1,963 08
For grading and placing 2,338 cubic yards loam	
at 26 1-2 cents	619 57
For pay of labor and teams including extra work	
and filling which could not be satisfactorily	
measured	2,109 54
	<hr/>
	\$4,692 19

The amount of water used during the year has not been sufficient to determine the amount of additional supply, which may be expected from the extension of the works ; but there is every indication it will be fully equal to that anticipated, and the results of the work have proved so far entirely satisfactory.

Pumping Station.

The contract with the Blake Manufacturing Co., required that the brick foundations and sub-foundations be put in by the city. The location for the new pumps was occupied below the cellar floor by the old brick foundations on which the old pumps originally sat, and the concrete blocks

built in below it 1882, in attempts to prevent the settlement that was taking place at that time by enlarging the area of the foundation. There were also the concrete and brick foundations of the small pumps to be removed.

The material below these old foundations, was fine gravel with veins of quicksand of varying thicknesses, and the ground water rose to within one and one-half feet of the cellar paving.

On the opposite side of the building were the solid concrete and hard pine foundations for the Worthington pumps, put in in 1883, and extending over half the width of the building.

This foundation extended down to grade 84.75 on the edges, and 85.75 in the central portion. The level of the bottom of the new brick foundations called for by the plans prepared by the Blake Manufacturing Co., was 92.33 with a small section under the air pump down to 90.33.

The sub-foundations for the pumps occupied the entire eastern portion of the building and the excavation made to grade, and the entire space filled with American cement concrete, composed of one part of American cement, two parts sand, and five parts stone.

In order to give additional rigidity to the mass, pieces of old iron railroad rails, twenty-nine feet long, were laid in the bottom of the excavation, and the concrete laid over them.

A Carson trench machine was rigged up, passing through the northwest window of the engine room and used for removing the material excavated, and gave satisfactory economic results.

Contracts and specifications for furnishing the granite and putting in the brick work for the foundations were prepared, and proposals were received from the following parties:

From Leach & Grant, of Boston, at \$7 per cubic yard	\$760 55
From Burnham & Davis, of Newton, at \$8.67 per cubic yard	913 00

For furnishing granite necessary in pump foundations:

Robert M. Gill & Co., Waltham	\$695 00
F. A. Hale, Fitchburg	720 00
McAuliffe, Fitchburg	740 00
Terrell, Fitchburg	825 00
McDonald, Cambridge	875 00

Mr. Gill, not bidding with a full understanding of the requirements of the contract, and declining to take the contract upon the terms called for, the contract was awarded to Mr. F. A. Hale, of Fitchburg, for the sum of \$720.00, the contract for brick work to Messrs. Leach & Grant, of Boston.

In order that more space might be had in the boiler room in front of the new boilers to be set, it was decided to make an addition to the building about six feet, eight inches deep, and the width of the building.

Contract, plans and specifications were drawn for making this extension, for taking down the brick work and removing the old boilers, the city to furnish the brick, cement and sand.

Proposals for furnishing the other materials required and for doing the work were received from the following parties, and for the following sums:

From Messrs Leach & Grant, Boston, Mass., mason and carpenter work	\$1,895 00
From Lyman A. Ross, Newton Highlands, mason and carpenter work	1,500 00
From Burnham & Davis, Newton, masonry	700 00
From Henry H. Hunt, West Newton, carpenter work and painting	549 00

The contract was awarded in two sections to Messrs. Burnham & Davis and Henry H. Hunt.

Pump and Boilers.

Work on the new pump and boilers, which were fully described in the City Engineer's Report for 1890, has progressed slowly, and while the pumps and engines have been set up and operated, the designers and manufacturers have not perfected them to their complete satisfaction, yet there is every indication that their efficiency will fully equal the contract requirements.

One of the boilers made by Edward Kendall & Sons, of Cambridgeport, has been delivered. The second boiler is made and will be delivered as soon as the first boiler can be connected with the Worthington engine and the old boilers can be removed from the building.

The construction of the engine, pumps and boilers have been carefully inspected during their construction by Mr. F. W. Dean, Mechanical Engineer, of Boston, and the work carried on under his supervision and much of the credit for the excellent quality of the machinery is due to his intelligent advice. He designed the piping for connecting the high pressure boilers with the Worthington engine, and proposals for furnishing and erecting the piping and fittings were obtained from the George F. Blake Manufacturing Co., of Boston, for \$925; from Edward Kendall & Sons, of Cambridgeport, for \$690.

The contract was awarded to Edward Kendall & Sons.

Reservoir.

Work on the new covered masonry reservoir was resumed by the contractor, Mr. William H. Mague, on April 13th. The remaining portions of the masonry walls were completed, about one-half of the covering arches laid, and covered with four inches of Portland cement concrete.

The arches and concrete covering laid during the late fall and early winter, although laid in cold weather, have

come out all right apparently without injury from exposure to the winter weather so soon after being laid.

The concrete covering after being thoroughly set and dried out was covered with a coating of hot coal tar, well sprinkled with sand, well spread and rubbed into any small cavities there might be in the concrete, and making the covering perfectly water tight.

The granite coping stone were set on the top of the masonry about the edge of the walls.

The surface of the cement concrete covering was graded with a slight slope towards the east bank, and from the crown to the spandrel of each arch.

Along the spandrel between each arch, tile drains one and one-half inches in diameter were laid to take the water from the top of the reservoir and connected with larger tile drains extending to the base of the bank. These tile were covered with four inches of screened pea gravel. In order to further insure the stability of the edgestone from the action of the frost, a backing of rubble-stone masonry about eighteen inches deep was laid dry. The remaining space inside and to the level of the top of the edgestones was filled with loam.

The Portland cement plaster was put on, and was specially satisfactory in its results; it was put on in three coats. Beginning at the bottom and working up, the first or rough coat was slashed on with trowels, all of the mortar that would hold on to the stone. When it had partially set they spread it with their trowels, pressing it into all the rough interstices of the stone work. The second coat was then laid on and smoothed off, and a third and finishing coat, somewhat richer in cement, was applied as soon as the other had set. Each coat was trowelled down until the surface was smooth and even.

A flooring of Portland cement concrete, having a proportion of one part of cement, two parts sand and five parts stone not above two inches in any diameter, was laid

four inches thick, levelled off and well rammed with small plank rammers. This was finished off with a thin finishing coat of Portland cement mortar, having one part cement and one part sand.

During the work of finishing off the inside of the reservoir, it was lighted by the use of sheets of bright tin set above the vent holes, from which the sunlight is reflected upon similar sheets of tin under the vent holes and inside of the reservoir. By their use the light can be thrown upon any part of the interior of the reservoir.

Access to the interior of the reservoir may be had through an opening left in the top near the western wall. It extends the full width between the arches, ten feet, and is three feet wide. In this opening an iron frame is set and is provided with a cover in three sections.

Vent manholes were set in an iron frame resting on, and built into the arches, one being set in the centre of each line of arches and over the centre of the reservoir.

The manhole frames consist of an iron cylinder two feet in diameter and projecting about eight inches above the loam, at which height slots were left in the cylinders to provide a free circulation of air, but arranged so as not to allow the direct rays of light to strike the water.

Just outside of the edgestones and on the top of the banks a gravel walk six feet wide was constructed and two flights of granite steps were set, one on the east bank and one on the west by the gate chamber.

Before the walls of the gate chamber were brought up to grade a brick base was built in to receive the distributing tank, and the tank was set on this base and brought up to the right grade by means of set screws furnished with it. It was set so that the overflow would be at grade 320, then the brick walls were brought up to a solid bearing all around, enclosing the set screws. The connections were then made with the waste pipe and the supply to the reservoir. The

lower piping was connected up some time previous, at the time the waste and the force main were laid. These two mains are located on top of each other, and are carried twenty-four inches in size back to beyond the foot of the embankment of any future enlargement of the reservoir, some 125 feet.

As there would be no need of access to the waste pipe, and as it was placed below the bottom of the walls of any future extension, the trench was filled in with concrete and well rammed before the force main was placed in it.

The waste was laid so that at the lower end it came out on a grade with the force main and after being reduced to twenty inches was brought up nearer the surface, and carried along side of the force main, to the grade of the old reservoir; here it was reduced again to twelve inches with a twenty inch branch, delivering by gate into the old reservoir, so that any overflow from the new reservoir would be delivered into the old.

In case of cleaning the reservoir the connection with the old could be shut off and the waste carried down the twelve inch pipe to an outlet in the brook below. A six inch pipe was also carried out from the bottom of the gate chamber to carry off any seepage and waste water from the floor.

The work on the reservoir was practically completed and was put in service at 7.45 A. M., August 8th, 1891.

On July 24th, a contract was made with Mr. George E. Winslow, of Waltham, for placing one of his recording gauges at the reservoir, which would indicate automatically the height of water in the reservoir at all times both at the pumping station and Water Registrar's office, City Hall, where the record of the height is kept on a card.

The float for the recording gauge is placed in a stand pipe twelve inches in diameter, placed in the gate chamber, and connected by a two inch pipe with the twelve inch waste pipe from the reservoir. This connection was provided with

a proper shut off and waste pipes so water could be drawn from the reservoir in the gate chamber if desired or the stand pipe emptied.

To insure against the water's freezing, so as to render the float inoperative, the stand pipe and connections were enclosed in a wooden box and the space between it and the stand pipe filled with sawdust.

A contract was made with the New England Telephone and Telegraph Co., to put up and connect the necessary wires to operate the gauges and indicators between the reservoir, City Hall, and the pumping station.

A battery of twenty-four Sampson No. 1 cells was placed in the gate chambers and connection made with the apparatus at the different stations. An electric bell is connected with the indicator, and rings at each rise and fall of one foot. This keeps the engineer constantly apprised of the level of the water in the reservoir and the warning often prevents his filling the reservoir too full, and to maintain the fires under the boilers with greater economy than would be otherwise probable.

The gate chamber was provided with a temporary plank roof made water tight with a covering of double thickness of tarred paper, which was covered with a heavy coating of tar and gravel.

In addition to the work performed by the department as above described, the meetings of the Board have been attended, and plans showing location of house connections and street mains made.

Surveys have been made, levels taken and lines for the laying of water mains in fifty-four streets covering a total length of 41,415.5 feet.

There have been located 298 services and renewals laid during the year.

Respectfully submitted,

ALBERT F. NOYES, *City Engineer.*

CITY OF NEWTON, MASS.

ORDINANCE XX.

Relating to the Water Department.

SECTION 1. A Water Board is hereby established consisting of five persons, one of whom shall be a member of the Board of Aldermen, one a member of the Common Council, and three at large. The offices of Water Registrar and Superintendent of Water Works are hereby established.

SECT. 2. The Superinténdent shall have general superintendence of the out-of-door work of the department, under the direction of the Water Board.

Whenever any repairs are made or new work done, he shall make a detailed report to the Board of the kind of work performed, where located, the amount thereof, the quantity and kind of material used therefor, to whom chargeable, and any other particulars that may be deemed desirable or necessary. He shall perform any other duties prescribed by the Water Board.

SECT. 3. The Water Registrar shall keep full, complete, and detailed records of all doings and correspondence of the Water Board, also similar records and accounts of all the work done by the officers and employes of the department, showing the kind of work done, the location and cost thereof, and the account to which it is charged.

He shall also keep a full record of the name of each water-taker, the location and description of the building in which the water is used the character of its use, the kind of service, the quantity supplied, and the amount charged therefor, all properly arranged for convenient reference.

He shall also keep a full record of the amount of water daily pumped, consumed, and in store; and, generally, of all facts pertaining to the condition and use of the works that may be desirable for reference.

He shall perform any other duties prescribed by the Board.

SECT. 4. The Water Board shall have the general supervision and management of the water works, and shall have power to appoint, hire, dismiss, discharge, and fix the compensation of such other officers and employes of the department (except Superintendent and Registrar) as they shall deem necessary for a proper transaction of its business.

SECT. 5. The Board shall annually, in the month of January, present to the City Council a report to and including the thirty-first day of December of the preceding year, containing a full statement of the doings of the department, of the condition of the work, and such other matters as they may deem proper.

SECT. 6. The Board shall annually, in the month of September, submit to the Committee on Finance of the City Council an estimate in writing of the receipts and expenditures of the department for the ensuing year.

SECT. 7. All bills and vouchers of purchases for the department, and pay-rolls and other bills for labor, shall be approved in writing by at least three members of the Board.

SECT. 8. All books of account and records in the department shall, at all times, be open to the inspection of any committee of the City Council designated to examine them.

SECT. 9. The Board shall attach a meter to all services supplying other fixtures than faucets; also to fixtures supply-

ing only faucets where more than three are used. The Board shall also furnish meters to all water-takers who desire to use them, regardless of the fixtures supplied.

All meters hereafter set shall be furnished, maintained, and renewed at the cost of the city, and the Board shall charge an annual rental therefor: provided, nevertheless, that any meter injured through the negligence of a water-taker, or by frost, shall be repaired at his expense.

SECT. 10. All premises where water is taken may at any reasonable time be inspected by a properly authorized officer of the department: and full authority is hereby given to the Board to order such inspection whenever they deem it for the interests of the department that it be made.

SECT. 11. The owner and the occupant of the premises in which water is used, who fails to protect his meter from frost, or fails to keep the service pipes and fixtures in good order, and neglects to repair them in three days after they have become defective, or neglects to shut off the water to prevent waste, shall be liable to a forfeiture of two dollars; and if the forfeiture is not paid within two days after notice, the water shall be cut off, and shall not be let on until the waste is stopped and the fine is paid, together with two dollars for shutting off and letting on the water.

In case of a second offence within one year the water shall be shut off, and shall not be let on except by a vote of the Board, and the payment of such forfeit, not exceeding ten dollars, as the Board may impose.

SECT. 12. Applications for service pipes shall be made upon blank forms furnished at the office of the Board; when the estimated cost of the applicant's part has been deposited, the pipes shall be laid. From the main to the street line the work shall be done at the expense of the city, the remainder at the cost of the applicant. The account shall be adjusted, and any balance paid before the water is turned on.

SECT. 13. Extensions of main pipe shall only be made

when authorized by an order of the City Council. Applications therefor must be made upon the blanks furnished by the Board, upon which shall be endorsed the estimate of cost of the extension desired. No such application shall be considered by the Board, unless accompanied by a written agreement, binding the applicant, or other responsible party, to guarantee the city annually, for at least five years, a sum equal to five per cent. of the total cost of the extension. All receipts, for water sold from such extension, and no other, shall be credited to the party making such guaranty as payments upon account of same.

Applications for extension of mains through private ways or grounds shall in no case be granted unless the owner thereof executes a proper instrument, securing to the city the right of permanent occupation, free from any acts of interference that shall affect the safety of the pipe, and securing to the department free right of entrance for purposes of its inspection and maintenance. Nothing in this section however, shall be construed as affecting the right of the City Council to authorize the extension of a water main without guaranty, if, upon a vote taken by yea and nay, two-thirds of the members of each branch present and voting shall vote to do so.

SECT. 14. All bills for water, including the minimum charge for water furnished by meter, shall be payable to the Treasurer in advance, on the first day of March annually. Bills for specific supplies or for a part of the year, and fines and penalties, shall be paid before the water is let on. Where water is supplied by meter, the excess over minimum rates shall be payable semi-annually, on the first day of March and of September, for the six months next preceding.

SECT. 15. In every case of non-payment of the water rent for thirty days after the same is due, the Board shall cause a written demand to be left at the premises where the water is taken; and unless the rent is paid within three days

thereafter, together with twenty cents for the demand, the Board shall cut off the supply. The water shall not be let on until the amount due, together with said fee, and two dollars for the shutting off and letting on, is paid whether other persons taking water through the service pipe are delinquent or not. In every case of non-payment of water rent, the owner of the premises, whether he is the occupant or not, shall be required to pay the same, and all charges connected therewith, provided he has been duly notified of the use of the water, and has made no objection.

Whenever the water is shut off by request of plumbers for the sake of making repairs, except those named in Section 11, the charge for shutting off and letting on shall be one dollar.

SECT. 16. The annual price or rent to be paid for the use of meters and for water shall be in accordance with the following schedule.

The Board is hereby authorized to make abatements and rebates in all proper cases; no special rates, however, shall be allowed. In any case not provided for by the schedule, the Board shall set a meter, and charge for the water at meter rate.

SCHEDULE OF RATES.

Dwelling Houses.

If occupied by one family, one faucet	\$6 00
Each additional faucet, not exceeding two	2 00
One faucet used by two or more families, each family using	4 00
Set wash-tubs, not more than three in a set, each set	1 00

For all other fixtures, the water to be supplied through meters at following rates:

For Consumption Averaging Daily for Six Months.

Under 3,000 gallons per day,	(per 1,000 gal.),	35 cts.
Over 3,000 gal. and under 6,000 per day,	" " "	30 "
" 6,000 " " " 10,000 " " "	" " "	21 "
" 10,000 " " " 20,000 " " "	" " "	19 "
" 20,000 " " " 30,000 " " "	" " "	15 "
30,000 gals. and over per day,	" " "	12 "

(Each meter to be subject to a minimum charge of \$10.00 per annum.)

SECT. 17. Any plumber, or other person, who shall make any alteration in or addition to, any water pipe or fixture, except so far as a written permit therefor has been given by the Board, shall be liable to a fine not exceeding twenty dollars.

SECT. 18. Whoever opens any hydrant, or removes any cap thereof, or opens or makes any connection with the pipe or reservoir, or turns off or on the water in the pipe or reservoir, without the permission of the Board, except in case of fire, shall be liable to a penalty of not less than three nor more than twenty dollars; provided, however, that in case of emergency the water may be turned off by any employe of the city, who shall, in such case, immediately give notice at the office of the Board.

SECT. 19. Whoever, without the authorization of the Board, fishes in the reservoir or filter basin, or discharges any gun or firearm upon the same or on the grounds connected therewith, or bathes therein, or places or uses any boat therein, or posts any bill, placard or advertisement within the said grounds, shall be liable to a fine of not less than five nor more than fifty dollars for each offence; and the Board is hereby authorized to exclude the public from any or all grounds of the department, whenever such exclusion may be

deemed by them necessary for the proper protection of the works.

SECT. 20. No water shall be sold to parties outside of the city.

SECT. 21. This amendment shall take effect, in so far as it relates to meters, on March 1, 1887; in all other respects it shall take effect upon its passage.

RULES AND REGULATIONS OF THE NEWTON WATER DEPARTMENT.

SECTION 1.

Office.

1. The office of the Water Board is hereby established in the room at City Hall now occupied by the Water Registrar.

SECTION 2.

Organization.

1. Besides the offices of Water Registrar and Superintendent, established by ordinance, the permanent organization of the department shall be as follows:

A civil engineer, an inspector of meters and fixtures, a pumping engineer, a fireman, a main-pipe foreman, a service-pipe foreman, three teamsters, and a clerk in the office of the Water Board. It is understood that the City Engineer is the civil engineer of this department.

SECTION 3.

Water Registrar.

1. The Water Registrar shall be the clerk and executive officer of the Board; all orders and communications of

the Board shall be signed by, or given through him, and shall be obeyed and respected accordingly.

2. He shall assess the water rates according to the tariff established by ordinance. He shall make out and distribute bills, exercise a constant supervision over the use of water, and attend to the enforcement of all regulations relating thereto.

3. He shall issue the orders of the Board for the laying of main and service pipe only after the requirements of the ordinance shall have been fulfilled; and in no case shall he order an extension in a private way until he has received a certificate from the City Engineer that said way is graded to proper level.

4. He shall be especially careful to see that the requirement of the ordinance regarding the pre-payment of water rates is strictly enforced, and in no event shall he order water turned on till the bill therefor shall have been paid.

5. He shall annually, on or before the first day of September, lay before the Board an estimate in detail of the appropriations required by the department, and of its income, for the next financial year.

6. He shall receive a daily report from the other officers of the department of the progress and condition of the work in their charge, and shall make a weekly report to the Board thereupon. He shall report at each meeting of the Board the number of hours the pumps have been run, the quantity of water pumped, and the consumption of water each day since his previous report; also everything of interest which has come under his notice.

7. He shall keep copies or memoranda of all orders from the office and the reports of other officers closely posted up, and will be held responsible for the proper condition of the books, papers, and work of the office, as also for the due performance of the duties imposed upon him by ordinance.

SECTION 4.**Superintendent.**

1. The office of the Superintendent is hereby established at the pipe yard at Newtonville.

2. The Superintendent shall have general charge of the out-of-door work. No new work shall be undertaken by him without the order of the Board; any work of maintenance, however, necessary to be performed without delay, may be done without said order, the Superintendent immediately reporting thereon to the Registrar.

3. He shall have control of the laborers and other employes engaged upon work under his charge. He shall have power to hire and discharge day laborers, and to suspend any other of his employes, giving immediate notice of such suspension to the Board for its action.

4. He will be held responsible for the good conduct of the men under his direction, the condition of the water, of the reservoir and its grounds, of the grounds about the pumping station, the basin and grounds in Needham, the piping, gates, hydrants, and other appurtenances of the department plant, and all tools and property at the pipe yard.

5. He shall be watchful to prevent or remedy any defect in a street or sidewalk resulting from the presence of main or service pipe or their appurtenances.

6. Before leaving his office he will report to the water office where he may be found while absent, and the time of his expected return.

7. He shall make daily reports to the Water Registrar of the progress and condition of work in his charge.

8. He shall report at each meeting of the Board the work commenced, the progress and completion of all work, and everything of interest which has transpired in his department since his previous report.

SECTION 5.**Inspector.**

1. The Inspector, under the charge of the Registrar, shall make inspections of the fixtures and meters in service, at such times as the Registrar shall deem expedient, and he shall, in general, act as chief assistant to the Registrar.

2. He shall have charge of testing, setting, and repairing meters, and shall keep careful record of the dates and results of all tests made; of the condition of all meters removed for repairs, both before and after repairs are made, with the date of their removal and resetting. He shall also keep a careful record of the cost of setting, repairing, inspecting and renewing all meters, and a record showing the work performed by all meters from the date of setting, with the annual and aggregate expense of their maintenance, computed both per meter and per 100,000 feet of water registered.

3. He shall make daily reports to the Water Registrar of the condition and progress of the work under his charge.

SECTION 6.**Engineer.**

1. Upon receipt of orders therefor from the Board, the City Engineer shall, within twenty-four hours, establish lines and grades for the extension of all water-mains, and shall take such measurements of main and service pipe extensions, and their appurtenances, as will enable him to correctly locate and plat the same; he shall keep the returns from the pumping engineer closely posted up, and shall plat therefrom a diagram showing the engine duty.

2. He shall make a daily report to the Water Registrar of the progress and condition of the work under his charge.

3. He shall perform such other duties as the Board may from time to time by vote require of him.

SECTION 7.

Pumping Engineer.

1. The pumping engineer shall be held responsible for the good condition of the pumping station, machinery, fixtures, furniture, tools, and other property of the department therein contained.

2. It shall be his personal duty to keep the engines, pumps, and engine-room in a neat and proper condition.

3. He shall be entitled to one day's leave of absence in each week, provided such absence will not interfere with the proper prosecution of the work of the department, but he shall not absent himself from the pumping station or its immediate vicinity without permission asked and obtained from the water office.

4. He shall keep closely posted up the book of record of the pumping engine, which will be furnished him.

5. He shall make a daily report to the Water Registrar of the height of water in the well and river; the quantity of water pumped, and of coal consumed, and of the general condition of the pumping station, and of the work under his charge. He shall also make weekly reports to the City Engineer of the engine record, upon blanks to be furnished him.

SECTION 8.

Fireman.

1. The fireman shall, under the supervision of the pumping engineer, attend to the firing of the boilers, and perform all work incidental thereto; it shall be his personal

duty to keep boilers, furnaces, boiler-room, coal-room, and other adjuncts to the boiler-room, in a neat and proper condition.

2. He shall not absent himself from the pumping station, without permission of the pumping engineer, but shall be entitled to one day's leave of absence in each week, when such absence will not interfere with the proper performance of his duties.

3. He shall keep a careful record of the amount of coal used, and the purpose of its use.

SECTION 9.

Employes.

1. The foreman of main and service pipe and two of the teamsters shall at all times be under the direction of the Superintendent; the other teamster shall be also under the direction of the Superintendent at such times as his services are not required by the Inspector. The clerk in the Water Board office shall be under the direction of the Water Registrar.

SECTION 10.

General Rules.

1. The matter of employment and discharge of other assistance than labor shall be exercised only by the Board.

2. The Board shall establish the compensation of all employes of the department, under the ordinance, and no change in compensation of any employe shall be made without the consent of the Board.

3. No expenditure whatever shall be incurred by any employe of the department without authority therefor from the Board.

4. The Board desires that it shall be distinctly understood by all employes, that the department expects, in return for the pay attached to their several positions, the whole of their time and the best of their ability. No extra pay for work directly connected with their duties will be allowed to persons whose pay is fixed by the month or year, and no absence from duty without leave will be permitted.

